

ARNOLD & SONS' SPECIALITIES.

"Reliance" Binaural Stethoscope (Patented). Vide *The Lancet*, Sept. 8th, 1894. Price 12s. 6d. In leather case, 14s.

New Portable Dry-cell Battery, $5 \times 3\frac{1}{4} \times 2\frac{1}{4}$. Price, complete, 20s.

"Reliance" Tourniquet (Patented). Vide *The Lancet*, July 15th, 1893. Price, complete in box, 2s. 6d.

New Vaginal Douche Tube, by Dr. Duke. Vide *British Medical Journal*, 8th, 1894. Price, complete, 10s. 6d.

Aseptic Operation Tables, dressing wagons, sponge tables, instrument tables, sterilizers, and cabinets, as made for St. Bartholomew's Hospital.

New Vaginal and Rectal Speculum (Patented), by Dr. Duke. Vide *British Medical Journal*, March 11th, 1893. Price—Vaginal, 30s.; Rectal, 21s.

New Intra Uterine Applicator, by H. E. Trestrail, M.R.C.S., &c. Vide *The Lancet*, November 28th, 1891. Price complete in leather case, 21s.

New Phymosis Dilator, by T. F. Gardner. Vide *British Medical Journal*, Sept. 26th, 1891. Price 16s. Nickel plated, 17s. 6d.

New Bullet Extractor (Patented), by Surgeon-Major Macnamara. Vide *British Medical Journal*, April 1st, 1893. Price, 10s. 6d.

Immediate Perineorrhaphy Case, by J. B. Hellier, M.D. Vide *The Lancet*, Jan. 23rd, 1892. Price, complete in leather case, 21s.

New Nasal Ointment Introducer, by W. Gayton, M.R.C.S., &c. Vide *The Lancet*, March 12th, 1892. Price complete, 6s. 6d.

New Stricture Dilator, by Lieut. Colonel E. Lawrie, Hyderabad. Vide *The Lancet*, April 9th, 1892. Price £3 3s., or complete in case, £3 10s.

Antitoxin Syringe for treatment of Diphtheria (Patented). Complete in case, 10s. 6d.

"Compactum" Midwifery Case, with Aseptic lining. Vide *The Lancet*, Dec. 9th, 1893. Price £3 10s.; complete, with bottles, £3 18s.

New Instrument for raising the upper Eyelid. Vide *British Medical Journal*, July 14th, 1894. Price 1s. 6d.

"Core" Bed Rest (Patented). Vide *British Medical Journal*, July 29th, 1893. Price, complete, 25s.

New Uterine Dilator, by T. F. Gardner. Vide *The Lancet*, January 23rd, 1892. Price 21s.; nickel plated, 23s. 6d.

New Aseptic Syringe (Patented), 4 oz. price 8s. 6d.; 8 oz., price 16s.

New Aseptic Ligature Bottle (Patented), composed entirely of glass. Price complete 8s. 6d.

New Uterine Dilator, by C. Yelverton Pearson, M.D., &c. Vide *The Lancet*, December 17th, 1892. Price complete, 21s.; nickel plated, 22s. 6d.

Improved Tonsil Guillotine, by A. Morison, M.D., &c. Vide *British Medical Journal*, January 16th, 1892. Price 25s.

New Hypodermic Syringe, as made for St. Bartholomew's Hospital, with patent oil reservoir and gold needles. Complete in Morocco-leather case, 21s.

Saline Transfusion Apparatus, by W. Arbuthnot Lane, M.S. Complete in wood case, 10s. 6d.

Aseptic Operation Knives (Patented), with hollow metal handles, nickel plated. (Handle and blade all one piece).

"Reliance" Clinical Thermometers, with Indestructible Indices. Price, from 3s.

ARNOLD & SON,

Instrument Manufacturers by Appointment to Her Majesty's Government, the Honourable Council of India, the Admiralty, The Crown Agents for the Colonies, Her Majesty's Prisons, Foreign Governments, Royal Chelsea Hospital, St. Bartholomew's Hospital, and the Principal Provincial and Colonial Hospitals, &c., &c.,

31, WEST SMITHFIELD, 1, 2 & 3, and 15 & 16, GILTSPUR STREET,
LONDON, E.C.

[ESTABLISHED 1819.]

357.7175

"A perfect combination of Malt Extract with Cod-Liver Oil."—THE BRITISH MEDICAL JOURNAL.

Bynol "The Perfected" MALT and OIL.



This preparation being an intimate combination of ALLEN & HANBURY'S Malt Extract with Cod-Liver Oil of their own manufacture, presents many notable advantages.

It is absolutely *free* from any *unpleasant taste*.

It can therefore be taken by *invalids* having the most *fastidious palates*.

It contains the *oil* in such a *fine state of division* that the particles cannot be seen under the microscope, and will remain in this state for months.

It possesses all the high *diastasic powers* of Malt, and thus materially aids the digestion of amylaceous foods.

It ensures, so far as can be done, the digestion of the cod-liver oil by perfectly emulsifying it.

There is no better method for administering Cod-Liver Oil and assuring its effectual and easy assimilation than by combining it with Extract of Malt. In addition to the properties of Cod-Liver Oil, which are too well known to be enlarged on here, **BYNOL** possesses all the high diastasic powers of Malt in perfection, and thus materially aids the digestion of all foods containing starchy or farinaceous matters. **BYNOL** is thus a combination of valuable food-stuffs which actively assist digestion, and is of the greatest value in Consumption, Wasting Diseases, Anæmia, Dyspepsia, and general weakness in convalescence from severe illnesses. It is unrivalled for children, who will regard it as a sweetmeat rather than as a medicine. During the winter **BYNOL** will be found of especial service in warding off the liability to *colds and coughs*, and it can be taken without the slightest repugnance during the summer months even by the most fastidious.

OPINIONS OF THE MEDICAL PRESS.

THE LANCET writes:—"Globules of oil cannot be distinguished. The Malt Extract is well prepared, and the diastase active. The flavour is very satisfactory."


THE HOSPITAL GAZETTE writes:—"It is far in advance of any emulsions of this drug." (i.e., Cod-Liver Oil.)

THE MEDICAL PRESS AND CIRCULAR writes:—"A perfect combination of the Malt Extract and Cod-Liver Oil prepared by this Firm."

Put up in Jars, 2s. and 3s. 6d. To the Medical Profession, 18s. and 33s. per doz.

SAMPLES FREE TO MEDICAL MEN ON APPLICATION.

The late Sir ANDREW CLARK, P.R.C.P., lecturing at the London Hospital on "The Treatment of Fibroid Lung Disease," said:—"There are two remedies which sometimes do succeed where the ordinary diet will not succeed in nourishing the patient, one is Cod Liver Oil and Malt given with food, a preparation called BYNOL prepared by Messrs. Allen and Hanburys."

 It is not infrequently necessary for children to be taken from the breast owing to insufficient supply or poor quality of the mother's milk and to be fed entirely or in part by bottle. In such cases it is of the greatest importance that the food supplied should be easy of digestion and not likely to cause gastric or intestinal troubles, which are so liable in children to end fatally. While there exist many foods of more or less value for the use of children of more than seven or eight months of age, *hitherto there has been no food which could safely be given to infants from birth up to the age mentioned.* As a rule, cow's milk, more or less sterilised and diluted with water, barley water or lime water, and sweetened, has been given, but through ignorance or carelessness of nurse or mother the baby often fails to thrive, and though it may pull through and live, its constitution is permanently weakened. Influenced by these and other considerations ALLEN & HANBURY'S have instituted a series of experiments under the advice and direction of physicians specially skilled in the ailments of children, and are now able to offer to the profession certain foods adapted on sound physiological principles for rearing infants from birth up to six or eight months of age, after which time ALLEN & HANBURY'S well-known "MALTED FOOD" answers admirably.

"First Food for Infants"

Is specially adapted for *delicate* Infants from birth up to three months of age, and is prepared from fresh and carefully selected cow's milk. The approximate composition of this milk having been determined, it is brought up as nearly as possible to the standard of human milk in casein, fat (cream) and sugar. It is then sterilised, concentrated *in vacuo* and preserved in hermetically closed vessels. It contains no starch, and does not clot in large curds as ordinary cow's milk does.

In Tins at 1/6 and 3/- each; 15/- and 30/- per doz. to the profession.

"Mother's Milk Food"

Is designed for Infants under seven months. It consists of No. 1 Food with the addition of small quantities of Maltose and Dextrine, together with soluble Phosphates resulting from the mashing crushed whole meal with barley malt. Thus a slight stimulus is supplied to the digestive powers, and as there is no unconverted starch present the whole of the Food can be well digested. It is sterilised, concentrated, and preserved as in the case of No. 1 Food. This food will be found to answer perfectly for all ordinarily healthy children from birth onwards, as all the ingredients can be readily digested. It is only in the case of very *weakly or delicate children* that No. 1 Food need be given.

In Tins at 1s. 6d. and 3s. each; 15s. and 30s. per doz. to the profession.

N.B.—Both the above Foods are complete in themselves, containing the Milk needed, only requiring the addition of hot water; this is an important point to be borne in mind when considering the cost. Further important points are (1) that the Food is completely sterilised, and (2) that its composition is uniform. These foods are now prepared in the form of a powder instead of paste as formerly.

"Malted Food"

Is designed for Children of seven months old and upwards as well as for Invalids, and is the Food made by Allen & Hanburys for many years. Its basis is fine Wheaten Flour, specially rich in nitrogenous matter, and this is subjected to careful heating and to the action of such an amount of Malt Extract as shall ensure the conversion of a large proportion of the starch. The remarkable nutritive power of this Food is due to the relative proportions of converted and non-converted amylaceous constituents. Prepared with fresh milk it affords a most valuable Food, rich in all the elements required for the nutrition of the growing tissues of the body and perfectly easy of assimilation.

In Tins at 6d., 1s., 2s., 5s., and 10s. each; 4s. 10d., 9s., 18s., 42s. 6d. and 85s. per doz. to the profession.

Allen & Hanburys, Ltd., London.

Offices, Laboratories and Warehouse—BETHNAL GREEN, E. City House—PLOUGH COURT, LOMBARD ST., E.C.
West End House—VERE ST., W. Cod Liver Oil Factories—LONGVA AND KJERSTAD, NORWAY.
Depôt for AUSTRALIA—484, COLLINS ST., MELBOURNE.
See also Pages i, iii, 401, and 415

Allen & Hanburys'

"PERFECTED"

Cod-liver Oil

It is the only Oil which does not "repeat."

"A Pharmaceutical Progress on the best lines of advance."—

British Medical Journal.

THE Medical Profession being unanimous in its verdict as to the great therapeutic value of Cod Liver Oil, it only remains for the manufacturers of the "Perfected" Oil to show that the name given, at the time of its introduction in 1878, was justifiable and not inappropriate. Increasing popularity with both the Profession and patients has marked its career, and no one who has tried and compared it with other oils now on the market has ever been able to say that the published description of its qualities was not borne out to the full. This is a most satisfactory result; and ALLEN & HANBURYS feel that their best advertisement is the recommendation of those who have tested it and experienced the benefit they have themselves derived from a pure Cod Liver Oil of a more easily assimilable character than any other.

A few facts as to its special points of superiority may be mentioned:—

PREPARATION.—(a) It is manufactured by ALLEN & HANBURYS' own workmen at their factories at Longva and Kjerstad in Norway. The sites of these factories have been specially chosen as being nearest to the finest fisheries on the coast.

(b).—Only **perfectly fresh** and **carefully selected** Livers are used, thus avoiding all possible deterioration in quality due to post-mortem changes or to the livers of other kinds of fish being used.

(c).—The process of manufacture which is employed **ONLY** in the production of the "Perfected" brand is specially adapted to the preservation of all the valuable inherent properties of the Oil and to the elimination of all nauseous qualities.

THE LANCET writes:—"The 'Perfected' Cod Liver Oil is as nearly tasteless as Cod Liver Oil can be. Many to whom the taste has hitherto been an obstacle will doubtless be able to take it."

The BRITISH MEDICAL JOURNAL writes:—"A Cod Liver Oil which is so delicate in flavour as to be free from all the usual nauseous properties of fish oil, and has almost the delicacy of salad oil."

The MEDICAL PRESS AND CIRCULAR writes:—"No nauseous eructations follow after it is swallowed."

The LONDON MEDICAL RECORD writes:—"Limpid, delicate, and free from disagreeable flavour, the 'Perfected' Cod Liver Oil will henceforth take its place as a pharmaceutical product which is in its way unrivalled."

NOTICE.—The "Perfected" Cod Liver Oil is sold **ONLY** in Capsuled Bottles, at 1/4, 2/6, 4/9, and 9/- each.

ALLEN & HANBURYS desire to make this statement as emphatic as possible, as their well-known Cod Liver Oil, which is still supplied in bulk as heretofore, is often represented as being identical with the "Perfected" Cod Liver Oil. The two are quite distinct.

Allen & Hanburys, Ltd., London.

Offices, Laboratories & Warehouse—BETHNAL GREEN, E. City House—PLOUGH COURT, LOMBARD ST., E.C.
West End House—VERE ST., W. Cod Liver Oil Factories—LONGVA AND KJERSTAD, NORWAY.
Depôt for AUSTRALIA—482, COLLINS ST., MELBOURNE.

See also Pages i, ii, 401, and 415.

MURPHY'S ANASTOMOSIS BUTTONS,

For Intestinal Approximation without Sutures.

DESIGNED BY DR. MURPHY, CHICAGO, U.S.A.

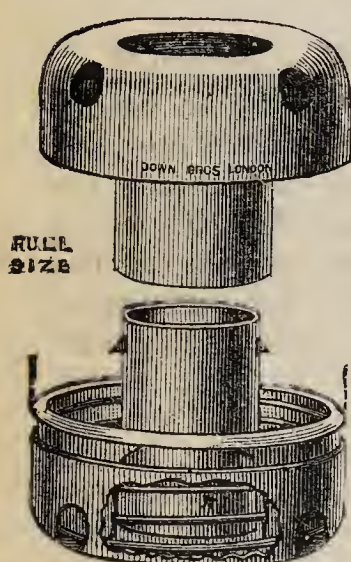
Made in 3 sizes,

Each 13/6.

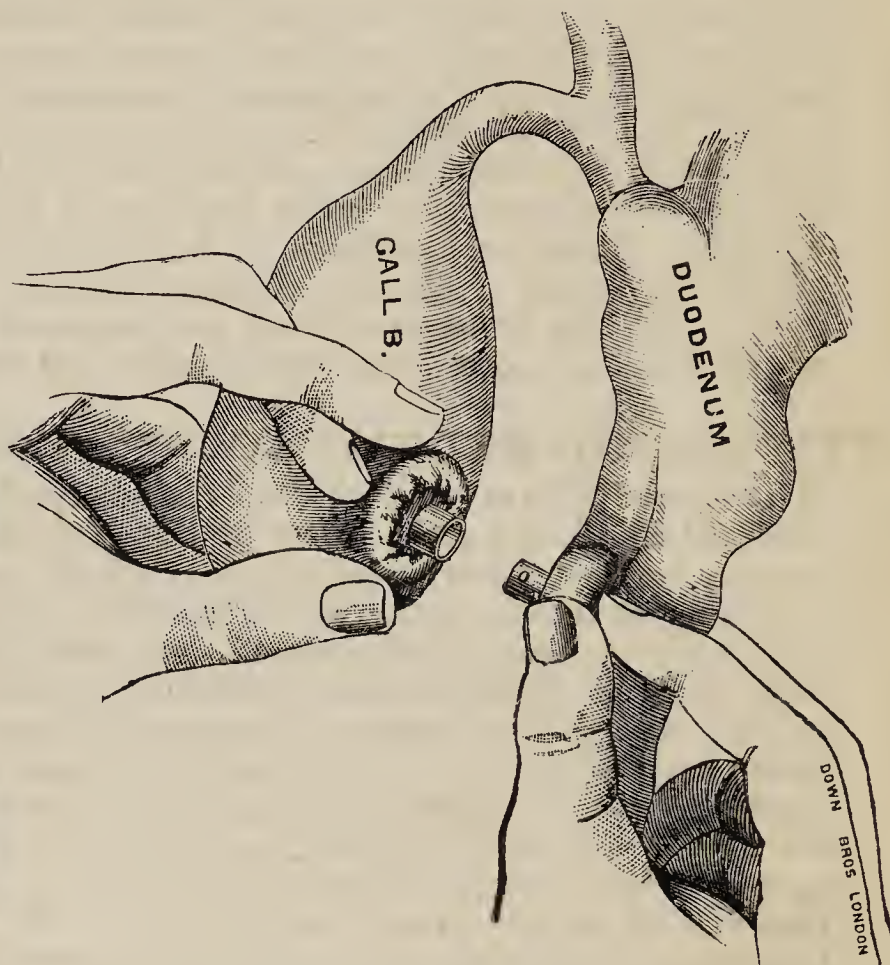
Extra large size,
for

the large intestine,

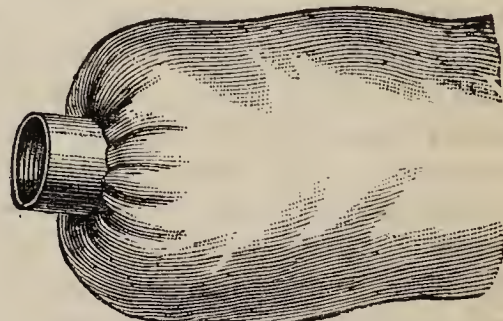
Each 17/6.



The Button before use.



*As used for Lateral Approximation for
Cholecysto-Enterostomy, &c.*



As used for End-to-End Approximation.

FULL DESCRIPTIVE CIRCULAR SENT ON APPLICATION.

Sole Authorised Manufacturers for Great Britain:—

DOWN BROS., 5 & 7, St. Thomas's St., LONDON, S.E.

(OPPOSITE GUY'S HOSPITAL).

Telegraphic Address—"DOWN, LONDON."

Factory—King's Head Yard, Borough.

BURROUGHS, WELLCOME & CO.
LIBRARY

No. 40

Braithwaite's Retrospect.
July, 1895.

The American Edition of this work (reprinted from advance sheets supplied by the Editor) is published by Messrs. G. P. PUTNAM'S SONS, 27 and 29, West 23rd Street, New York, U.S.]

*Communications for the Editor to be addressed DR. BRAITHWAITE, Leeds.
Parcels of Books to SIMPKIN, MARSHALL, HAMILTON, KENT & Co., LD.,
London.*

The Proprietors of "THE RETROSPECT," which has been established over half a century, having decided to insert ADVERTISEMENTS therein, have appointed Mr. A. P. WATT, 2, Paternoster Square, London, E.C., their sole Agent for the collection and receipt of Advertisements of a select nature, and to him all communications should be addressed, a month before the date of each publication at latest.

ADVANTAGES: *Large Circulation—Permanency—Reasonable Charges.*

PRINTED BY MCCORQUODALE & CO. LIMITED, LEEDS.

"STRONGEST AND BEST."—*Health.*

Fry's

PURE CONCENTRATED

Cocoa

THE DRINK *par excellence*

FOR BREAKFAST, LUNCHEON, and SUPPER.

Highest Honours, Chicago, 1893.

95 PRIZE MEDALS AWARDED TO THE FIRM.

Purchasers should ask specially for **FRY'S PURE CONCENTRATED COCOA**, to distinguish it from other varieties manufactured by the Firm.



THE
RETROSPECT OF MEDICINE

A HALF-YEARLY JOURNAL

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND
PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

JAMES BRAITHWAITE, M.D. LOND.

OBSTETRIC PHYSICIAN AND SURGEON TO THE LEEDS GENERAL INFIRMARY.

LATE LECTURER ON DISEASES OF WOMEN AND CHILDREN, LEEDS SCHOOL OF MEDICINE.

FELLOW AND LATE VICE-PRESIDENT OF THE OBSTETRICAL
SOCIETY OF LONDON.

CORRESPONDING FELLOW OF THE GYNÆCOLOGICAL SOCIETY OF BOSTON, U.S.

VOLUME 111. JANUARY—JUNE, 1895.

(Issued July, 1895.)

LONDON:

SIMPKIN, MARSHALL, HAMILTON, KENT & CO., Limited.

EDINBURGH: OLIVER & BOYD.

DUBLIN: HODGES, FIGGIS & CO.; AND FANNIN & CO.

LEEDS: W. BRIERLEY, BOND STREET.



“CADBURY'S”

“s the standard of highest purity at present attainable in Cocoa.”—“THE LANCET,” May 25th, 1895.

NO CHEMICALS USED,

As in many of the so-called “pure” Foreign Cocos.

CONTENTS OF VOL. CXI.

SYNOPSIS PAGES 1—128*.

(For Contents of Synopsis, see pp. xix-xxv.)

Practical Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

ARTICLE.	AUTHOR.	PAGE
1 On the Treatment of Pyrexia ...	<i>Dr. W. Hale White</i>	129
2 The Relation of Bacteria and their Toxines	<i>Dr. E. Klein, F.R.S.</i>	132
3 The Etiology of Tuberculosis ...	<i>Dr. Herbert M. King</i>	136
4 Clinical Observations upon a Series of 80 Cases treated with Diphtheria Antitoxin	<i>{ Dr. J. W. Washburn Dr. E. W. Goodall, & A. H. Card, Esq. }</i>	140
5 On the Antitoxin Treatment of Diph- theria	<i>Dr. G. Sims Woodhead</i>	144
6 On Calomel Fumigation in Laryngeal Diphtheria	<i>Dr. W. P. Northrup</i>	150
7 The Pathology of Infantile Scurvy in its Relation to Rickets	<i>Dr. Thomas Barlow</i>	152
8 The Clinical Manifestations of In- fantile Scurvy and its Relation to Rickets	<i>Dr. Thomas Barlow</i>	157
9 On Diet in Typhoid Fever	<i>Dr. Charles W. Lullies</i>	162
10 A Case of Idiopathic Anæmia, in which Arsenical Palsy had been induced, treated by Bone Marrow	<i>Dr. Alfred G. Barrs</i>	165
11 The Supra-Renal Bodies	<i>Dr. H. D. Rolleston</i>	170
12 Acromegaly—two cases, with remarks	<i>Geo. R. Murray, Esq.</i>	177
13 Some Cases of Graves' Disease, suc- ceeded by Thyroid Atrophy ...	<i>Dr. W. W. Baldwin</i>	180

ARTICLE.	AUTHOR.	PAGE
14 The Treatment of Obstinate Hiccough	{ <i>W. Langford Symes, Esq.</i> }	184
15 Hemorrhagic Diphtheria	{ <i>Dr. Harold Austen & Harry Cogill, Esq.</i> }	187
16 Antitoxic Treatment of Infective Diseases	<i>Bertram Hunt, Esq.</i>	189
17 The Natural History of Rheumatic Fever	<i>Dr. Arthur Newsholme</i>	192

DISEASES OF THE NERVOUS SYSTEM.

18 Ataxia as a Symptom of Disease in the Cerebro-Spinal System ...	<i>Dr. D. B. McCartie</i>	200
19 Arthropathies of Locomotor Ataxy...	<i>Dr. Parker Syms</i>	204
20 The Sensory Throat Neuroses of the Climacteric Period	<i>Dr. Felix Semon</i>	207
21 On Laryngeal Paralysis in Chronic Nervous Disease	<i>Dr. W. Permewan</i>	210
22 Differential Diagnosis of Cerebral Tumours	<i>Victor Horsley, Esq.</i>	211
23 On Lead Convulsions	<i>Dr. D. D. Stewart</i>	214

DISEASES OF THE ORGANS OF CIRCULATION.

24 The Remedies Employed in Cardiac Affections and their Indications...	<i>Dr. Thomas R. Frazer</i>	220
25 The Treatment of Chronic Affections of the Heart by Baths and Exercise	<i>Dr. W. Bezley Thorne</i>	225
26 On the Gouty Heart and its Treatment	<i>Dr. J. Mitchell Bruce</i>	230
27 On Some Points in the Treatment of the Gravest Forms of Cardiac Dilatation	<i>Sir Dyce Duckworth</i>	235
28 On Cardiac Asthenia in Children Suffering from Infectious Diseases	<i>Dr. Sevestre</i>	238
29 The Treatment of Nervous Disturbance of the Heart from Influenza	<i>Dr. Ernest Sansom</i>	240
30 Sudden Death by the Rupture of Thoracic Aneurisms previously unrecognised	<i>Dr. F. W. Draper</i>	243

DISEASES OF THE ORGANS OF RESPIRATION.

ARTICLE.	AUTHOR.	PAGE
31 Remarks on the Climatic Treatment of Phthisis	{ <i>Dr. C. Theodore Williams</i> }	251
32 Foreign Bodies in the Air and Food Passages, and the Principles of their Removal	<i>Dr. Felix Semon</i>	254
33 Rheumatism of the Larynx	{ <i>Dr. G. Hunter Mackenzie</i> }	257
34 Nodes of the Vocal Cords—Singers' Nodes, Teachers' Nodes	<i>N. C. Haring, Esq.</i>	259
35 Malignant Disease of the Larynx ...	<i>Dr. Felix Semon</i>	261
36 The Treatment of Atrophic Rhinitis by Zinc Stearate	<i>Dr. Joseph S. Gill</i>	265

DISEASES OF THE ORGANS OF DIGESTION.

37 On Enteralgia	<i>Professor Potain</i>	269
38 On Colitis	<i>Dr. W. Hale White</i>	271
39 On the Treatment of Non-Malignant Stricture of the Pylorus	<i>Dr. Alexander Ogston</i>	275
40 The Absence of Free Hydrochloric Acid in Cancer of the Stomach ...	{ <i>Dr. Richard B. Faulkner</i> }	279

DISEASES OF THE URINARY ORGANS.

41 Uric Acid Gravel—Etiology, Symptoms, and Treatment	<i>Dr. Vaughan Harley</i>	282
42 On Suppression of Urine in Diphtheria	<i>Dr. E. W. Goodall</i>	286
43 The Nervous Symptoms of Patients Suffering from Chronic Urethritis	<i>Dr. R. K. Macalester</i>	288

Surgery.

GENERAL SURGERY AND THERAPEUTICS.

44 The Treatment of Aneurisms of Arteries of the Extremities by Extirpation of the Sac	<i>H. Littlewood, Esq.</i>	293
---	----------------------------	-----

ARTICLE	AUTHOR.	PAGE
45 On Infantile Scurvy in Surgical Practice	<i>Howard Marsh, Esq.</i>	299
46 The Conditions of Cure in Cancer ...	<i>Dr. Herbert Snow</i>	302
47 Non-Tuberculous Diseases of Joints	<i>Dr. Arthur J. Gillette</i>	306
48 On the Diagnosis of Acute Joint Tuberculosis	<i>Dr. A. G. Millar</i>	308
49 The Treatment of Impacted Fracture of the Neck of the Femur ...	<i>F. A. Southam, Esq.</i>	311
50 On Fracture of the Femur immediately above the Condyles	<i>Howard Marsh, Esq.</i>	313

NERVOUS SYSTEM.

51 The Treatment of Injuries of the Spinal Cord... ..	<i>Wm. Thorburn, Esq.</i>	315
---	---------------------------	-----

ALIMENTARY CANAL.

52 Is the Apposition of Peritoneum to Peritoneum a Surgical Error? ...	<i>J. Greig Smith, Esq.</i>	320
53 Operative Treatment of Perforative Ulcer of the Stomach and Intestines	<i>A. Pearce Gould, Esq.</i>	324
54 On the Surgical Treatment of Cancer of the Pylorus	<i>Dr. F. Kammerer</i>	327
55 On the Various Methods of Performing Gastrostomy	<i>Dr. Willy Meyer</i>	330
56 On Appendicitis	<i>Dr. J. William White</i>	334
57 Two Cases of Enterectomy in which Murphy's Button was used ...	<i>Dr. W. Mitchell Banks</i>	342
58 Relapsing Typhlitis—Observations on a Series of Cases treated by Operation	<i>Frederick Treves, Esq.</i>	347
59 Prolapse of the Rectum Treated by Ventro-fixation	<i>Arnold Caddy, Esq.</i>	350
60 Remarks on Excision of the Rectum	<i>F. T. Paul, Esq.</i>	351

ORGANS OF URINE AND GENERATION.

ARTICLE.	AUTHOR.	PAGE
61 Nephrorrhaphy for Movable Kidney	<i>Dr. Geo. B. Johnson</i>	355
62 Castration for the Cure of Hypertrophied Prostate	<i>Dr. J. William White</i>	357
63 The Mortality of the Various Operations for the Removal of Vesical Calculus, especially in Children...	<i>Gilbert Barling, Esq.</i>	359
64 Primary Tuberculosis of the Genito-Urinary Organs	<i>Dr. Francis S. Watson</i>	362

AFFECTIONS OF THE EYE AND EAR, &c.

65 On the Care of the Ear during the Course of the Exanthemata ...	<i>Walker Downie, Esq.</i>	365
66 On the Treatment of Ophthalmia Neonatorum	<i>John Tweedy, Esq.</i>	367
67 On Suppuration in the Accessory... Cavities of the Nose	{ <i>Dr. Greville Mac-</i> <i>Donald</i> }	370

Obstetrics and Gynecology.

68 On Symphysiotomy	<i>Dr. James M. Jackson</i>	374
69 On the Local Treatment of Puerperal Fever	{ <i>Dr. Charles J.</i> <i>Cullingworth</i> }	377
70 On the Influence of Diet in the Causation of Cancer	{ <i>W. Roger Williams,</i> <i>Esq.</i> }	379
71 On the Life-History of Mammary Cancer Patients	{ <i>W. Roger Williams,</i> <i>Esq.</i> }	380
72 On Uterine Curetting... ..	<i>Dr. D. Berry Hart</i>	381

Addenda.

ARTICLE.	AUTHOR.	PAGE
73 On the Disruption of Impacted Biliary Calculi, including Three Cases in which a Gall Stone in the Common Duct was broken up by the Needle	<i>T. Pridgin Teale, Esq.</i>	385
74 The Prophylaxis of Influenza ...	<i>Dr. J. G. S. Coghill</i>	389
75 Cases Illustrating the Importance of an Examination for the Diphtheria- Bacillus 	<div style="display: inline-block; vertical-align: middle;"> <i>Dr. J. W. Washbourn</i> <i>and</i> <i>Dr. E. O. Hopwood</i> </div>	<div style="display: inline-block; vertical-align: middle; font-size: 3em;">}</div> 391
76 On the Prognosis of Apoplexy due to Cerebral Hemorrhage 	<i>Dr. Alfred G. Barrs</i>	393

Synopsis Contents.

SYNOPSIS.	AUTHOR.	PAGE
Improvement of Acromegaly under Treatment by Thyroid Gland	<i>Dr. Caton</i>	1
Treatment of Acute Coryza	<i>M. Marcel Lermoyez</i>	1
Treatment of Acute Dysentery	<i>Sir Joseph Fayver</i>	3
Administration of Salicylates in Acute Rheumatism	<i>Dr. W. P. Latham</i>	5
Alcohol in Diabetes	— <i>Hirschfeld</i>	6
Elimination of Arsenic	<i>Dr. Dixon Mann</i>	7
On Barlow's Disease	— <i>Baginsky</i>	7
Calomel as a Diuretic	<i>Dr. W. Pepper</i>	8
Chills as a Cause of Error in Diagnosis	<i>Dr. Osler</i>	9
Chemical Antidote for Chloral Poisoning	<i>Dr. John Dougall</i>	10
Antitoxin Treatment of Diphtheria	<i>Dr. G. S. Woodhead</i>	11
Antitoxin Treatment of Diphtheria	<i>Kossel and Koerte</i>	13
Antitoxin Treatment of Diphtheria	<i>Dr. Latham</i>	15
Antitoxin Treatment of Diphtheria	<i>MM. Martin and Chaillou</i>	16
Intubation and Antitoxin in Diphtheria	<i>Dr. Hunter Mackenzie</i>	18
Treatment of Diphtheria by Loeffler's Mixture	<i>Medical Chronicle</i>	19
Method of Collection of Diphtheritic Discharge	<i>Prof. Hamilton</i>	19
Exophthalmic Goitre Treated with Thymus Gland	<i>David Owen, Esq.</i>	20
External Application of Guaiacol in Fever	<i>S. T. Barboszewicz</i>	22
Feeding by the Stomach-tube in Diphtheria	<i>Dr. Alexander Morrison</i>	22
External Use of Guaiacol as an Antipyretic	— <i>Brill</i>	23
On Icterus Neonatorum	— <i>Schmidt</i>	24
Hæmaturia in Infantile Scurvy	<i>Dr. Barlow</i>	24
The Social Relations, &c., of Infantile Scurvy	<i>Dr. Barlow</i>	25
Subdural Hemorrhage in Infantile Scurvy	<i>Dr. Wallis Ord</i>	26
The Relationship of Influenza and Epidemic Pneumonia	<i>Dr. Cruickshank</i>	26
Hypodermic Administration of Arsenic in Leukæmia	<i>Dr. S. Rummo</i>	28
Malikin as an Antipyretic and Anti-rheumatic	<i>Dr. Robert Abernethy</i>	28
Menthol in Diphtheria	<i>F. Kartorsky</i>	30
A Case of Myositis Ossificans	<i>Mr. Stephen Paget</i>	30
The Relation of Myxœdema to Graves' Disease	<i>B. Campbell Gowan, Esq.</i>	33
New Antidote to Morphia, Potassium Permanganate	<i>Dr. Graham Chambers</i>	33
On Osteo-Arthropathy	<i>Dr. Murray</i>	34
On Polymyositis	<i>R. T. Williamson, Esq.</i>	35
Perforation of Soft Palate in Scarlet Fever	<i>Dr. E. W. Goodall</i>	37
On Scurvy Rickets	<i>Dr. Ashby</i>	38
Subdural Hemorrhage in Scurvy	<i>Dr. Wallis Ord</i>	38
Sodium Salicylate in the Treatment of Acute Articular Hemorrhage	<i>M. Henri Huchard</i>	38

SYNOPSIS.	AUTHOR.	PAGE
Splenic Leucocythemia treated with Arsenic and Oxygen	<i>Dr. Frederick Taylor</i>	40
Subnormal Temperature of the Body	<i>Janssen</i>	41
On Sulphonal and Trional	<i>Schaumann</i>	42
Thyroidectomy in Gray's Disease	<i>Dr. J. Arthur Booth</i>	42
Thyroid Feeding in Basedow's Disease	<i>Dr. Voisin</i>	42
The Relation of "Thyroidism" to Exophthalmic Goitre and to Hysteria	<i>M. Bécère</i>	43
Trional in Sleeplessness in Children	<i>Dr. Claus</i>	43
Note on the Hypnotic Action of Trional	<i>M. Vogt</i>	44
On Traumatic Glycosuria	<i>Drs. Higgins and Ogden</i>	45
Treatment of Miliary Tuberculosis with Guaiacol..	<i>New York Medical Journal</i>	46
The Disinfection of Tubercle Infected Houses ..	<i>Delapine and Ransome</i>	46
<hr/>		
On Acute Anterior Poliomyelitis	<i>Von Kahliden</i>	47
Epidemic Acute Anterior Poliomyelitis	<i>Dr. Starr</i>	48
Report on Ten Fatal Cases of Acute Idiopathic Cerebro-Spinal Meningitis	<i>Dr. J. A. Ormerod</i>	49
Affections of the Nervous System occurring in the Early (Secondary) Stages of Syphilis	<i>Jonathan Hutchinson, Esq.</i>	50
A Fatal Case of Anorexia Nervosa	<i>Lockhart Stephens, Esq.</i>	53
A Fatal Case of Anorexia Nervosa	<i>Dr. C. F. Marshall</i>	55
Bilateral Facial Palsy as a Sequence of Influenza ..	<i>W. J. Barkas, Esq.</i>	55
On Crossed Kneejerk	{ <i>Drs. Guy Hinsdale and Madison Taylor</i> }	58
Hysterical Contracture of the Legs of Two Years' Standing Completely Cured in a few weeks by Ordinary Methods of Treatment		
Ingravescent Cerebral Hemorrhage treated by Ligature of the Common Carotid Artery ..	<i>Dr. Hector Mackenzie</i>	58
Transitory Palsies in Insular Sclerosis	<i>Dr. Buzzard</i>	60
Leprosy of the Ulnar Nerve	<i>Mr. Banks</i>	61
Early Signs of Locomotor Ataxia	<i>Prof. Fournier</i>	61
On Migraine	<i>Dr. Claus</i>	
Neurasthenia: Depression of Spirits bordering on Insanity	<i>Dr. F. Orton</i>	63
Optic Neuritis in Brain Tumour	<i>Dr. Wm. H. Wilder</i>	63
Treatment of Pruritus by Antipyrin	<i>F. Arnstein</i>	64
On Spinal Syphilis	<i>— Scalfati</i>	64
Treatment of Stridulous Laryngitis in Children ..	<i>M. Huchard</i>	65
Tetany and Chronic Dilatation of the Stomach ..	<i>Dr. Soltan Fenwick</i>	66
Treatment of Traumatic Peripheral Neuritis ..	<i>M. Delorme</i>	67
Tumours involving the Base of the Skull	<i>Cecil Beadles, Esq.</i>	68
<hr/>		
Embolism of Abdominal Aorta	<i>— Dchio</i>	68
Cardiac Therapeutics	<i>Prof. Frazer</i>	69
The Signs of Heart Failure in Fevers.. ..	<i>M. Huchard</i>	71

BY SPECIAL
TO H.R.H. THE



APPOINTMENT
PRINCE OF WALES.

BRAND & CO.'S ESSENCE OF BEEF.

This ESSENCE consists solely of the Juice of the finest English Beef, extracted by a gentle heat, without the addition of water or of any other substance whatever. It contains, therefore, the most stimulating and exhilarating properties of the meat, calculating to invigorate the heart and brain immediately, without any fatty or other elements which require solution in the stomach. It has been introduced into medical practice as a stimulant, after loss of blood from any cause, and in cases of nervous exhaustion and enfeebled digestion.

**This Preparation has been in use for
nearly Half a Century.**

**Supplied to Her Imperial Majesty
THE EMPRESS OF RUSSIA.**

To be obtained of all Chemists, or direct of

BRAND & CO., MAYFAIR, LONDON, W.

BY SPECIAL
TO H.R.H. THE



APPOINTMENT
PRINCE OF WALES.

BRAND & CO.'S

MEAT JUICE.

The essential feature of which is the juice of the finest English Meat in its natural state, containing the albumen uncoagulated, together with the other nutritive properties ready for immediate assimilation.

Notice from "LANCET," 7th January, 1893.

"BRAND & CO.'S MEAT JUICE (BRAND & Co., 11, Little Stanhope Street, Mayfair, W.).—This is a powerful, nourishing, and stimulating fluid, obtained from prime beef by submitting it to pressure in the cold—a method of preparation which must be regarded as highly satisfactory, for, according to our analysis, the valuable principles of the meat have not only been preserved intact, but the fresh, agreeable and natural flavour of beef has also been retained. . . . No objectionable preservatives were detected. The alimentary value of the preparation is evident."

To be obtained of all Chemists, or direct of

BRAND & CO., MAYFAIR, LONDON, W.

SYNOPSIS.	AUTHOR.	PAGE
An Early Sign of Pericarditis	<i>M. Josseraud</i>	72
Portal Thrombosis and Hepatic Infarction	<i>Dr. N. Pitt</i>	72
Presystolic Apex Murmur occurring with Aortic Disease and with Adherent Pericardium, with absence of Mitral Stenosis	<i>Dr. T. Fisher</i>	73
On Sedatives in Heart Disease	<i>Dr. H. A. Hare</i>	75
Senile Plethora, or High Arterial Pressure in Elderly Persons	<i>Prof. Clifford Allbutt</i>	76
Strophanthus as a Cardiac Tonic	<i>Prof. Greenfield</i>	76
Treatment of High Arterial Pressure.. .. .	<i>Medical Record</i>	78
<hr/>		
The Causation of Ægophony	<i>Dr. Frederick Taylor</i>	79
On Caffeine in Spasmodic Asthma, &c.	<i>Dr. Markham Skerrett</i>	81
Treatment of Empyema in Children	<i>Dr. Cautley</i>	81
Fœtid Expectoration treated by Inhalations of Coal Tar Creasote Vapour	<i>Dr. Chaplin</i>	83
Malignant Disease of the Larynx	<i>Dr. Semon</i>	84
Chloralose in the Treatment of Night Sweats	<i>M. Sacaze</i>	86
Treatment of Pleuritic Effusions	<i>Dr. Ashton</i>	86
Absent Knee-jerks, with Inaction of the Intercostal Muscles during Respiration in Pneumonia	<i>Dr. Hughlings Jackson</i>	87
On the Treatment of Pneumonia	<i>G. Ivanoff</i>	89
New Method of Treatment of Pulmonary Phthisis	<i>Dr. Carasso</i>	89
Treatment of Respiratory Affections by means of large medicinal injections through the Larynx	<i>Colin Campbell, Esq.</i>	90
<hr/>		
On Acute Pancreatitis	<i>Dr. J. E. Paul</i>	92
On Appendicitis	<i>J. W. White, Esq.</i>	92
On Carcinoma of the Intestine.. .. .	<i>Dr. James Ritchie</i>	93
The Rational Treatment of Cholera Infantum	<i>Dr. Gustavus Blech</i>	95
On Habitual Constipation	<i>Dr. Henry Illoway</i>	95
Treatment of Dysentery by Cinnamon	<i>Surg.-Major S. T. Avetoon</i>	97
Treatment of Chronic Gastric Ulcer by Papain	<i>Dr. Guthrie Rankin</i>	98
Malignant Jaundice in a child two years of age	<i>Dr. Donkin</i>	99
On Peritoneal Adhesions	<i>Nicaise</i>	100
Observations on General Peritonitis treated medically	<i>Prof. Revilloid</i>	101
Operative Treatment of Perityphlitis.. .. .	<i>Mr. Symonds</i>	101*
On Pylorectomy and Pyloroplasty	<i>Dr. Kammerer</i>	102*
A New Method of Resection of the Rectum	<i>Dr. Routier</i>	102*
Summer Diarrhœa and Sterilisation of Milk	<i>A. Baginsky</i>	103
On Acute Tonsillitis	<i>Massei</i>	103*
On Acute Miliary Tuberculosis of the Pharynx	<i>Kiaer</i>	103*
Operative Treatment of Tuberculous Peritonitis with Ascites.. .. .	<i>Dr. G. Frees</i>	104*

SYNOPSIS.	AUTHOR.	PAGE
Bright's Disease without Albuminuria	<i>Marion</i>	104*
Effects of Double Castration (White's Operation) upon the Enlarged Prostate	<i>E. Hurry Fenwick, Esq.</i>	105
On Catheter Fever.. ..	<i>Southam</i>	105*
Recurrence of Chancres in the site of old sores ..	<i>Mr. Jonathan Hutchinson</i>	105*
On Cystic Kidneys	<i>Dr. Pye-Smith</i>	106
Treatment of Gleet	<i>F. A. Southam, Esq.</i>	106*
On Gonorrhœal Peritonitis in the Male	<i>Dr. A. J. McCosh</i>	107
Local Treatment of Persistent Hæmaturia by Silver Nitrate	<i>Dr. C. F. Denny</i>	107*
Bilateral Orchectomy for Hypertrophy of the Prostate	<i>Dr. J. D. Thomas</i>	107*
Hypertrophy of the Prostate treated by Castration	<i>Dr. J. Wm. White</i>	108
Prostatic Hypertrophy treated by Castration ..	<i>Lutken</i>	108
Puerperal Convulsions and Albuminuria	<i>Sir John Williams</i>	108*
On the Duration of Life after the Appearance of Retinitis Albuminurica	<i>— Possaner</i>	109
Inflammation of the Seminal Vesicles	<i>Dr. R. W. Taylor</i>	109*
Turpentine in Incontinence of Urine.. ..	<i>Dr. Emminghaus</i>	110
On Urogenital Tuberculosis	<i>Dr. Porter</i>	110*
<hr/>		
The Control of Hemorrhage by the Operator in Amputation at the Shoulder	<i>Clement Lucas, Esq.</i>	110*
Treatment of Anthrax	<i>A. F. Matveiff</i>	110*
Aristol in Otorrhœa and Burns	<i>Dr. Krebs</i>	111
On the Treatment of Burns	<i>Dr. Grose</i>	111*
The Results of Tubercular Hip Disease	<i>Dr. Bruns</i>	111*
Insomnia in Surgery and its Treatment	<i>Dr. Geo. G. Van Schaick</i>	112
Rectal Etherisation	<i>Bernard Stedman, Esq.</i>	112
Lateral Curvature of the Spine.. ..	<i>Christopher Heath, Esq.</i>	112*
Treatment of Sprained Ankle	<i>Dr. Gibney</i>	113
On Sulphur in Surgery	<i>W. Arbuthnot Lane, Esq.</i>	114
Tetanus Antitoxin.. ..	<i>Dr. Richard T. Hewlett</i>	114*
Recovery of a Case of Tetanus Treated with Antitoxin	<i>Hurry Fenwick, Esq.</i>	114*
Chloroform in Tetanus	<i>P. A. Prëobrajensky</i>	116
Torticollis of Rhachitic Origin.. ..	<i>Dr. Phocas</i>	116
Treatment of Chronic Ulcers of the Leg	<i>— Hallum</i>	116*
<hr/>		
Coal Tar in Dermatological Practice	<i>Leo Leistikow</i>	116*
Ichthyol in Eczema	<i>Mr. Tomroy</i>	117
Treatment of Furunculosis	<i>Van Hoorn</i>	117*
Impetigo Contagiosa Bullosa	<i>Dr. Elliott</i>	118
Dangers of Naphthol as an Application to the Skin	<i>— Baatz</i>	118*
On Psoriasis Palmaris	<i>Dr. H. S. Purdon</i>	118*
Treatment of Seborrhœic Eczema in Children ..	<i>— Feulard</i>	119
Treatment of Skin Diseases by Thyroid Extract ..	<i>Dr. P. S. Abraham</i>	119
Urticaria Pigmentosa	<i>— Afzelius</i>	119*

SYNOPSIS.	AUTHOR.	PAGE
Aural Massage: Its Value in the Treatment of Various Diseases of the Ear	<i>L. Turnbull, Esq.</i>	120
Simple Method of Removal of Foreign Bodies in the Cornea	<i>Dr. N. D. Harvey</i>	120*
On Coryza Caseosa	<i>Dr. McBride</i>	120*
Treatment of the Chronic Form of Empyema of the Antrum	<i>Dr. Scanes Spicer</i>	121
On Recurrent Epistaxis	<i>Roth</i>	121*
Furunculosis of the External Auditory Canal ..	<i>Dr. S. M. Smith</i>	121*
On Hysterical Deafness	<i>Dr. Clarence J. Blake</i>	122
Menthol in Otitis Externa	<i>— Cholewa</i>	122*
The Prognosis of Chronic Non-Suppurative Otitis Media with Imperforate Membrane	<i>Mr. Field</i>	123
Pilocarpine in Ménière's Disease	<i>— Labit</i>	123*
The Treatment of Ophthalmia Neonatarum ..	<i>Kalt</i>	123*

Asafoetida in Obstetrical and Gynæcological Practice	<i>Warman</i>	124
Dilatation of the Cervix of Unimpregnated Uterus	<i>Dr. Braithwaite</i>	124
Treatment of Dysmenorrhœa	<i>Dr. Schwarz</i>	124*
Lubricants in Gynæcological Practice	<i>E. C. Dupley, Esq.</i>	124*
Postclimacteric Hemorrhage	<i>Dr. Sinclair</i>	124*
On Posture in Labour	<i>— Walcher</i>	125*
Pregnancy and Operations in the Uterine Appendages	<i>Delagénère</i>	126
Pregnancy following Ventral Fixation of the Uterus	<i>Dr. Helena Goodwin</i>	126
On Pubic Symphysiotomy	<i>Dr. Garrigues</i>	126*
Removal of the Uterine Appendages for Uterine Myoma	<i>Dr. Cullingworth</i>	127
Treatment of Septicæmia following Confinement or Miscarriage	<i>Dr. Rose</i>	127
On Symphysiotomy	<i>Dr. Pinard</i>	127*
On Symphysiotomy	<i>Dr. Winterburg</i>	128
Permanent Results of Symphysiotomy	<i>Von Woerz</i>	128
Fœtus infected with Tuberculosis at Delivery ..	<i>F. Lehmann</i>	128*
Ventral Fixation of the Uterus and its Effects on Subsequent Pregnancies	<i>Dr. Lohlein</i>	128*

LIEBIG "COMPANY'S"

EXTRACT OF BEEF

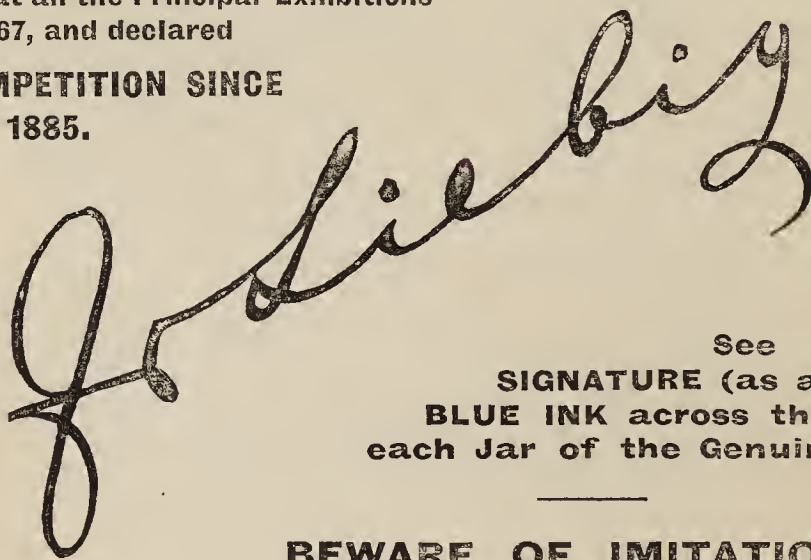
MAKES THE PUREST, CHEAPEST, and BEST

BEEF TEA

KEEPS FOR ANY LENGTH OF TIME.

Highest Awards at all the Principal Exhibitions
since 1867, and declared

ABOVE COMPETITION SINCE
1885.



See
SIGNATURE (as annexed) in
BLUE INK across the Label on
each Jar of the Genuine Extract.

BEWARE OF IMITATIONS!

THE COMPANY'S NEW COOKERY BOOK,

Sent **free** on application to

STREET & CO.,

30, CORNHILL, LONDON, E.C.

Synopsis.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME,
WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS,
SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT,
PUBLISHED BY DIFFERENT WRITERS DURING THE HALF YEAR.

ARRANGED ALPHABETICALLY.

GENERAL MEDICINE AND THERAPEUTICS.

ACROMEGALY.—Improvement under Treatment by Thyroid Gland.

Before the Liverpool Medical Institution, on January 31st, Dr. Caton described an early case of acromegaly occurring in a woman aged 27. Enlargement of the hands, feet, lower jaw, tongue, nose, and lower lip had taken place. She complained of headache, aching in the eyeballs, dimness of vision, and excessive lacrymation. Exophthalmos was present, with œdema round the eyes and greatly diminished visual fields, but no optic neuritis or temporal hemianopsia. The thyroid was small. The patient complained of pain in the right hypochondrium, coldness of the extremities, muscular feebleness, depression, and apathy. After three months' treatment by rest, tonics, and good food she appeared to be worse rather than better. About the beginning of November, 1894, three tablets, each containing two grains of pituitary body, were given daily. After this her condition showed much variability; sometimes she was much better. On December 18th, in view of the analogy between acromegaly and myxœdema, thyroid tablets were alternated with pituitary tablets. From this time improvement was rapid; all pain, headache, and œdema disappeared. Vision became perfect, and the visual fields normal in extent. The hands and feet diminished in size, as did also the lower lip. Her facial expression changed, muscular strength increased, and she became as cheerful and active as she had been three years before. (*The Lancet*, February 9, 1895, p. 349.)

ACUTE CORYZA.—Treatment of.

M. Marcel Lermoyez, in the *Journal des praticiens* for January 26th, remarks that there is a very wide-spread opinion that coryza is always a benign affection that does not call for

treatment, and, moreover, that therapeutics has no influence over it, a double mistake of which many persons have been the victims. Medicine is not so powerless against coryza as is supposed. It may moderate the disease at the outset; it may palliate painful symptoms in a marked degree; and very often it may prevent the complications which are provoked by coryza. There are innumerable abortive remedies and certain local means which, if employed when dryness of the mucous membrane is first observed, give excellent results. But, if at the end of twelve hours their effect is not visible, their use must be stopped, as their irritating action, if kept up, will increase the intensity of the coryza. An excellent solution for inhalation is the following: Pure carbolic acid and ammonia water, each, 75 grains; alcohol, 150 grains; distilled water, 225 grains. Every hour ten drops of this solution should be poured on blotting-paper and the vapours inhaled by the nose for several seconds. Among the abortive powders the following, which should be very finely pulverised: Cocaine hydrochloride, 8 grains; menthol, 4 grains; salol, 75 grains; boric acid, 225 grains. A pinch of this is to be snuffed up every hour; it provokes an abundant mucous discharge and affords great relief. Among the internal abortive remedies there is only one that is comparatively reliable, and that is the mixture, in equal parts, of tincture of belladonna and tincture of aconite root, of which thirty drops are to be taken in divided doses. Energetic sweating, also, induced by a vapour bath has occasionally given beneficial results. These abortive means are sufficient in ordinary cases. If the coryza itself can not be moderated, the most painful symptoms, which are nasal obstruction and headache, may be ameliorated by the palliative treatment. For this nothing is so good as the use of a Richardson spray with a boiled and tepid one-per-cent. solution of cocaine hydrochloride; this brings real relief, freeing the nose and at the same time suppressing the pain in the head. Spraying every two or three hours is sufficient. The cocaine may also be incorporated in powders that are slightly antiseptic but not irritating. The following formula is given: Cocaine hydrochloride, 8 grains; menthol, 4 grains; bismuth salicylate and sugar of milk, each, 75 grains. If there is reason to fear cocaine poisoning, 300 grains of pure olive oil and 30 grains of menthol may be administered by the spray and not by painting, which may produce an erosion, especially if the patient attempts to do it himself. In order to quiet the neuralgia of the trigeminal nerve which often accompanies coryza, as well as to combat the general infection which manifests itself in chills and lumbago, a capsule containing four grains of quinine hydrochloride and eight grains of antipyrine is to be taken at each meal. To prevent erythema of the orifice

of the nostril, the entrance of the nose and the upper lip should be rubbed with vaseline with which boric acid has been incorporated. Irrigation of the nose at the acute period of coryza should be absolutely interdicted, as it results in a constant irritation of the mucous membrane and increases the tumefaction; furthermore, it constitutes a real danger for the ear. On the other hand it finds its indication afterward when a muco-purulent secretion follows coryza, which tends to become chronic. Then the treatment should be the same as that employed in chronic purulent rhinitis. Acute coryza in the newborn, says the author, is a very serious affection. It disturbs the sleep and prevents the child from nursing, and the patient wastes away rapidly. In these cases the nasal obstruction should be removed at once by applying several drops of a two-per-cent. oily solution of menthol to the nasal fossa, which detaches the crusts at the opening of the nostrils and provokes momentary retraction of the turbinates. The mentholated oil, which is entirely harmless, is preferable to cocaine solutions, which, at that age, cause very serious toxic symptoms and should, for this reason, be proscribed. Before the child nurses, the secretions which obstruct the nose should be removed by means of a dry douche given with a Politzer's bag. One moderate insufflation into each nostril is sufficient. This very simple procedure is preferable to nasal irrigation, which should be reserved for cases of purulent rhinitis. With regard to intubation of the nose, which consists in introducing into the nasal fossæ rubber tubes to establish an air-passage, this is a dangerous method, says the author, which wounds the mucous membrane and gives rise to synechia. If the child, in spite of this treatment, can not breathe sufficiently through the nose to admit of its nursing, it must be fed with a spoon. (New York Medical Journal, February 16, 1895, p. 222.)

ACUTE DYSENTERY.—Treatment of.

Sir Joseph Fayver, in an article on the above subject, observes that :—The various methods of treating dysentery have been as varied as the theories of the disease itself, and the results have always been unsatisfactory. But the last thirty years have witnessed considerable progress in the therapeutics of dysentery, and we now know that if it be dealt with in the very outset there is probably no disease more amenable to treatment. The treatment of an attack of ordinary acute dysentery is to be conducted on the following plan. The patient should remain in bed or in the recumbent posture; if there be abdominal pain or tenderness on pressure, hot fomentations or turpentine stupes should be sedulously applied. A dose of twenty or thirty grains of ipecacuanha powder, according to age, strength, &c., should

be given to an adult at once in water, and the patient should endeavour to resist vomiting as long as possible—though for my part I am inclined to think the emesis does rather good than harm. It may be well to combine ten grains of carbonate of sodium with the ipecacuanha. It is recommended by some to give a dose of fifteen or twenty drops of laudanum before the ipecacuanha, and to apply a sinapism to the epigastrium, with the view of diminishing irritability of the stomach and of preventing sickness. The patient must abstain from all fluids except occasional mouthfuls of iced water or bits of ice to allay thirst, which is often intense. My own plan has generally been to repeat the dose of ipecacuanha in four or six hours—a second or third time, according to the effects. I have generally found that if this treatment be resorted to early in acute dysentery, it is most effective. The pain diminishes, the tormina and tenesmus are alleviated, the restlessness is abated, the sense of fulness and desire to go to stool passes away, the skin becomes moist, and in all respects a general sense of relief is experienced. The motions become fæculent, and assume a peculiarly yellow appearance. If any irritability should remain, a dose of ten or fifteen grains of Dover's powder is beneficial; it gives ease, sleep, and aids in the restoration of the natural action of the bowels. Small doses of castor oil—half an ounce or less—are given occasionally, and by some are considered of importance. No doubt if there be inaction of the bowels after ipecacuanha, or if it be necessary to aid in expelling mucus—for the irregular contraction of tenesmus is not always efficient in this respect—the castor oil is most desirable; or if there be indications of hepatic or portal congestion, sulphate of sodium or magnesium would be better. A certain amount of nourishment should be given, but it must be fluid, and of the most bland and unirritating character—animal broths, milk and soda-water or lime-water (for milk alone is not always tolerated), and arrowroot. Farinaceous food, as a general rule, does not agree, and it is better to adhere as nearly as possible to broth and milk. In the acute stage, at the outset this alone is necessary, and all remedies of an astringent or sedative nature are unnecessary. It is quite possible that there may be a recurrence of the acute symptoms; in which case the ipecacuanha must again be given, though it may now be in smaller doses of ten or fifteen grains—the recumbent posture and the carefully regulated diet being rigidly observed, with fomentations, turpentine stupes, and ten grains of Dover's powder at night; or an injection of starch and thirty or forty drops of laudanum. When the disease has advanced to ulceration, and when the chronic stage has been fully established, the ipecacuanha is no longer useful. Many cases do not appear until the catarrhal stage has been over-

passed, and a condition more difficult to deal with has been established. In such cases, where from delay in treatment, or when the disease has been neglected, either the congested exudative stage continues, or ulceration has begun, it may be necessary to continue the use of ipecacuanha, though in smaller doses of four or five grains, and it may be expedient to combine it with other drugs. Dover's powder, alone or combined with quinine, and, it may be, ten or fifteen grains of sodium bicarbonate or bismuth two or three times a day substituted, especially at night. Complete rest of the body and intestines is necessary, and for this the recumbent posture, and remedies that allay muscular spasm, are necessary. Judiciously used, opium may be of great benefit, but, as a general rule, it is better to avoid the use of it as much as possible. (The Practitioner, November, 1894, p. 330.)

ACUTE RHEUMATISM.—Administration of Salicylates in.

In a paper on the above subject, read before the Cambridge Medical Society, Dr. P. W. Latham points out that there are three causes of failure with this remedy :—(1) Insufficient doses at the commencement ; (2) the non-administration of purgatives such as calomel ; and (3) feeding with substances other than milk, such as beef tea, broths, &c., especially in the earlier stages. I have seen cases where the temperature had remained at from 100° to 102° F. for several days under the administration of moderately large doses, and the remedy seemed ineffectual ; but on giving five grains of calomel at night, repeating it if necessary the following night, and feeding the patient exclusively on milk, the disease has at once declined and run a favourable course. The administration of calomel (followed if necessary by purgatives) is the best adjuvant to the use of the salicylates. Again, there are cases in which the salicylates cause nausea or sickness ; this is more marked if the salt of the artificial acid has been employed, but it does sometimes occur even after the use of the salt of the true acid. How is this to be avoided ? A common form of administration is : sodii salicylatis, gr. xx. ; aq. cinnamomi, unciam ; to which, if necessary, five grains of carbonate of ammonia may be added. Or it may be given in the effervescing form, as, sodii salicylatis, gr. xx. ; sodii bicarbonatis, gr. xx. ; syrupi aurantii, drachmam ; aq. chloroformi ad unciam cum semisse ; cum acid citric, gr. xvii. Or instead of the citric acid give three drachms of lemon juice, replacing the syrup of orange by half a drachm of simple syrup. It must, however, be borne in mind that in some constitutions repeated doses of lemon juice may induce sudden prostration, as was observed many years ago when the remedy was employed

in the treatment of rheumatism. Administered in any of these forms, however, the salicylate may give rise to some nausea, and a certain feeling of repugnance may be induced in the patient to the medicine. This may be avoided entirely by giving the salicylic acid itself, made up into pills. I have never seen the remedy in this form cause nausea unless it was in individuals who have a difficulty in swallowing pills. And there is good reason for it. Made up in this form the pills do not readily undergo solution in the stomach. The acid is insoluble in the acid juices there, and the pills pass on into the duodenum before solution takes place. In fact, when the bowels are acting very freely and the pills have been freely administered, I have occasionally seen them unchanged in the evacuations. (The Lancet, January 19, 1895, p. 157.)

ALCOHOL IN DIABETES.

Hirschfeld (*Berl. klin. Woch.*, February 4, 1895) discusses the question as to when alcohol in moderate quantity should be allowed, and when altogether prohibited. The author does not agree with the view that alcohol may be an etiological factor in the production of diabetes. In cases of diabetes closely investigated he found that the addition of a small quantity of alcohol (30 to 70 g. per diem) had no ill effect. The quantity of nitrogen in the urine was only temporarily increased. With the use of alcohol more fats could be taken, and hence the increased feeding is made more easy. The sugar was noted at the beginning sometimes to be diminished, at other times to be increased, but the original level was arrived at later. No change was noted in the acetonuria. In cases where there is already cardiac weakness or vascular disease alcohol should be used cautiously. There is no danger of increasing the polyuria. Alcohol is a food stuff, and yet it may possibly injure the heart, vessels, or kidneys. Beer is forbidden, as it contains the most extractive matters, which are chiefly carbohydrates. If a certain amount of these latter are to be allowed they are much better given in bread and vegetables. All sugar containing liqueurs and sweet wines are, of course, forbidden. Wine, cognac, and certain forms of brandy, &c., may be allowed. The author concludes that 30 to 70 g. of alcohol are thoroughly consumed in the body in these cases, that it does not interfere with the secretion of the urine or the absorption of food, and that metabolism is only temporarily increased. The general nutrition, however, is improved. Alcohol has no definite action on the tissue changes peculiar to diabetes. The state of the heart, vessels, and kidneys should be borne in mind. The use of alcohol is only necessary in severe cases in order to ward off as much as possible by over feeding the falling off in strength and

the development of tuberculosis. (Epitome, British Medical Journal, February 23, 1895, p. 31.)

ARSENIC, ELIMINATION OF.

Dr. Dixon Mann, in an article on "The elimination of arsenic and its detection in the urine," states that :—It is a universally accepted fact that arsenic is chiefly eliminated by the kidneys and the bowels, and that elimination begins very quickly after the reception of the first dose. Arsenic is not a cumulative poison, although its presence may be detected in the urine for some short time—according to my own experience, not exceeding eleven days after its administration has ceased. To verify these statements, Reinsch's test is usually resorted to. This test is generally allowed to be easy and convenient, requiring no special skill, and only the simplest apparatus, yet being amply sufficient, as to delicacy and certainty—inasmuch as it will reveal the presence of arsenic in a solution consisting of one part in 200,000 of water—to detect the poison when present in the urine. I hold that arsenic, when present in the urine, can be most easily detected. That Reinsch's test, properly applied, is amply sufficient in delicacy and certainty to detect it. That Reinsch's test, on account of its simplicity, and the ease with which it can be performed, is admirably suited to the requirements of medical men. The real difficulty with regard to Reinsch's test is, that it is not easy to obtain hydrochloric acid free from arsenic; hence the absolute necessity of always proving that the acid used contains no arsenic. The points to which attention should be paid, when testing urine for arsenic by Reinsch's method, are :—(1) To take 12—16 oz. of the urine, and to reduce it to one-fourth its volume by gentle evaporation. (2) To ascertain that the hydrochloric acid is free from arsenic. (3) To add to the urine one-sixth to one-fifth its volume of the acid. (4) To boil for at least 15 minutes before accepting a negative result. (5) Not to trust to the appearance of the foil after boiling, as it will probably be coated by extraneous matter; but to heat it in a reduction tube, and not to pronounce in favour of the presence of arsenic unless perfectly distinctive crystals of As_2O_3 are obtained. In forensic work the crystals should further be tested chemically to prove that they are those of As_2O_3 . (Medical Chronicle, March, 1895, p. 413.)

BARLOW'S DISEASE (Scurvy-Rickets).

Baginsky (*Berl. klin. Woch.*, February 18, 1895) thinks that Barlow's disease is becoming more frequent in Berlin than it formerly was. He showed a child aged 11 months to the Berlin Medical Society. The child had beaded ribs, but showed no decided marks of rickets in the limbs. In the lower third of

each thigh there was swelling, and deep indistinct fluctuation could be made out. The swollen regions were extraordinarily tender, and the child made no spontaneous movements of the limbs. The child's gums were slightly swollen and darker red than natural. Baginsky has noticed that the greater number of cases of this disease occur in families of good means, and most of his cases have occurred in private practice, when "artificial" foods have been used. The children do well on these foods at first, and then cease to progress or decline in their general nutrition, and painful swellings make their appearance. He does not think, however, that the blame can be as yet attached with certainty to these methods of feeding. One child had taken only cow's milk, and the disease followed on a convulsive cough. He calls attention to the superficial similarity between Barlow's disease and Parrot's syphilitic pseudoparalysis. In the latter affection the lesion is an acute gummatous osteochondritis, which has nothing to do with the subperiosteal hemorrhages of the former disease. Syphilis could be excluded with certainty in all Baginsky's cases of Barlow's disease. (Epitome of the British Medical Journal, March 9, 1895, p. 37.)

CALOMEL AS A DIURETIC.

This drug is certainly of less general value as a diuretic, and more frequently entirely valueless than many others ; but there are cases in which the great efficiency of calomel justifies and repays the labour given to the investigation of this subordinate action of the drug in question. The diuretic action of calomel is not a newly-discovered fact, though only of recent years has it engaged the attention prominently. The indications governing its use for this purpose, and the precautions necessary to the fullest success of the treatment, are recent additions to medical knowledge, and are perhaps still but imperfectly established. Certainly it would appear that calomel increases diuresis in dropsical patients, by causing absorption of serum and rapid elimination by the kidneys. The recent cases of Palma are interesting in this connection. In six cases of cirrhosis of the liver, with ascites, large doses of calomel proved actively diuretic in four, the two negative results being in well-advanced cases. In one case of secondary carcinoma of the liver with ascites the drug acted most powerfully, and the ascites rapidly disappeared. In two cases (hypertrophic cirrhosis and carcinoma of the bile-ducts) without ascites, on the other hand, little or no diuretic influence was noted. The rapid loss of the diuretic power is rather peculiar to this drug, but was so constantly noted in the case reported, and has been so uniformly observed by others, that it seems an established fact. After a few days' interval the calomel acts as effectively as before. The dose should be

not less than one grain every three hours, and the bowls should be controlled by opium. Constant use of antiseptic mouth-washes, no doubt, contribute to the avoidance of stomatitis, and should never be neglected. (Dr. W. Pepper, *Medical News*. December 15, 1894, p. 647.)

CHILLS AS A CAUSE OF ERROR IN DIAGNOSIS.

Dr. Osler in a paper on the above subject read before the Medical and Chirurgical Faculty of Maryland, states :—Chills differ very much in their etiology, but they may be divided into two main groups :—(1) Those from sudden shock to the nervous system ; and (2) those from absorption of the toxic material formed by organisms. In so-called nervous chill fever is absent. In the second group there is always fever. The first group need not detain us. The nervous chill is that met with in gallstone colic or in the passage of a catheter. This initial chill is without fever, but subsequently, of course, there may be chills with fever due to infection. The disease most often associated with chills is malarial fever, and here the chill is of a characteristic kind, so that the name "chills and fever" is synonymous with malaria. The two great diagnostic points in malaria are the invariable association of the plasmodium of Laveran and the invariable curative effects of quinine. These are the two special features of the malarial chill. It may be said that within forty-eight hours the chill will cease in genuine malaria if quinine be used. On the other hand, the paroxysms continue, and under its use malaria may be excluded, except in a few cases of the autumnal fevers, malarial fevers which may resist quinine for a few days, but these have not the same character of ordinary intermittents. Chills cause errors in diagnosis in various affections. In tuberculosis the error may be made early or late in the disease, for it is at the two extremes of pulmonary tuberculosis that we have chills. These are a special feature of the early stages of tuberculosis. Errors occur frequently in regions where paludism is common. Then there is the large group of septic processes with fever, such as abscess of the liver, which is a common cause of chills and fever in this latitude. There are very few cases of abscess of the liver which are not at first regarded as malarial fever, and thus much valuable time is lost in the treatment. Malignant endocarditis is another disease which is ushered in by chills and which is often treated for malaria. A not frequent source of error is the chill following and associated with pleurisy of a tuberculous form and from empyema following the infectious diseases, as scarlet fever, &c., and following the formation of pus. The chills in typhoid fever are of the greatest importance, and have attracted attention for years. They occur in 2 or 3 per cent. of all cases. Very often

the chill is due to the doctor's giving powerful antipyretics. In certain affections of the urinary passages, and more especially in pyelitis, chills occur which are often obscure. In chronic obstruction of the common duct by gallstones there is the condition called by Charcot hepatic intermittent fever due to catarrhal cholangitis. In new growths of various kinds, as in cancer of the stomach, in Hodgkin's disease, and lastly in syphilis, errors in the fever may be made. The important points in the diagnosis of chills are the use of quinine and the examination of the blood. (Medical Record, January 12, 1895, p. 59.)

CHLORAL POISONING.—Chemical Antidote.

Dr. John Dougall, in an article on this subject, states that when chloral was first used its hypnotic action was thought to be solely due to the generation of chloroform from it by the alkalies of the blood; its effects on the body generally were, and indeed still are, held as almost identical with those produced by chloroform. This view, however, has been disputed on the grounds that the quantity of chloroform which a full dose of chloral is capable of producing is quite inadequate to cause the hypnosis and anæsthesia that have been observed, also that the greater part of the chloral is exhaled from the lungs unchanged, and that small quantities of it may be found in the urine, but no chloroform. Whatever facts or theories, however, there may be regarding the manner of the hypnotic and anæsthetic action of chloral, there can be no doubt about its chemical composition and affinities, and, in particular, that it is almost at once decomposed, at and above 60° F., outside of the body in an alcoholic solution of potash into formate of potassium of chloroform, and somewhat less quickly in an aqueous solution of potash. Assuming that a person has taken a poisonous dose of chloral, say eighty grains, and that there could with safety be given, as a chemical antidote, twenty-seven grains of potash, this amount being the quantity by weight in the formula required to decompose eighty grains of chloral—in such a case, says the author, there are strong *a priori* grounds for assuming that in about fifteen minutes the chloral in the system would be entirely changed into formate of potassium and chloroform, or, at least, that so much of it would be decomposed that the residue would be harmless. But would not the potash, or the amount of its formate, or of the chloroform thus produced, be as lethal as the chloral? Undoubtedly twenty-seven grains of potash swallowed at once, even much diluted, would cause serious symptoms. But if even half that quantity was given in divided doses—say seven grains every hour—in warm milk, gruel, or barley-water, it seems very probable that by this means no serious irritation of the gastro-intestinal tract would be the result, and that in

a short time so much of the chloral would be decomposed as to render the rest at least non-lethal. The liquor potassæ of the *British Pharmacopœia* contains about a grain of potash in sixteen minims, and the maximum dose stated is sixty minims. Hence, to give seven grains of potash is equal to giving a hundred and twelve minims of liquor potassæ. It may be assumed that this quantity, highly diluted, might be given without fear of causing unfavourable symptoms. By this means twenty grains of the chloral would soon be decomposed, thereby neutralising its lethal power to a certain degree, if the potash is given before the patient is too far gone to be afforded relief by this means; then, if in an hour after a similar dose of potash is given in the same way, this would reduce the chloral in the system to forty grains, a quantity quite within the bounds of safety for an adult, provided there is no heart trouble. (Glasgow Medical Journal, February, 1895, p. 288.)

DIPHTHERIA.—Antitoxin Treatment of.

[Dr. G. S. Woodhead appends the following conclusions to an important lecture, a part of which appears at p. 144:]

The necessity of carefully carrying on this treatment and improving the method if possible is proved: (1) By the results obtained from clinical examination. (2) From the startling results obtained by experiments on small rodents which can be readily protected against enormous doses of most active diphtheria toxine. (3) From the remarkable property possessed by this antitoxic serum of neutralising the diphtheria toxines, even when the process is carried out in an ordinary test-tube. (4) From the fact that in diphtheria the disease is essentially the result of the manufacture of poison practically outside the body, so that if we can attack the disease at its source, and can at the same time neutralise the poisons that are diffused into the body, we have the control of the disease; and as the disease runs such a rapid course it is possible to ascertain whether the case is improving or going backwards almost immediately, or within the course of thirty-six hours. When the disease is once got under we have little or no fear of any return. In this respect the disease differs most materially from tuberculosis, in which, as is well known, the disease may be distributed very widely through the body, and the poison-forming bacteria make their way comparatively easily from point to point throughout the tissues, so that even though we are able to attack and overcome the disease at one point, it may be still doing its work at twenty others, and it is impossible to determine for a very lengthened period whether the improvement maintained even at a single point is permanent or not. (5) It is not even a process of vaccination, though it is quite possible, from what has been seen

of experiments on animals, that a temporary protection may be obtained which will carry the child over the period of danger in an infected house or district. The antitoxic serum is a direct therapeutic agent, and need only be used in patients actually suffering from the disease where benefit may be expected to accrue. (6) Cautious observers, both amongst pathologists and physicians, who have had an opportunity of observing a number of cases treated have acknowledged that they have been surprised at the results obtained, and Virchow, who almost from the first deprecated the extravagant claims that were put forward for Koch's tuberculin, has stated that, in view of the remarkable results obtained in carefully observed cases of diphtheria, it is the duty of every physician to employ the antitoxic serum remedy, in spite of the fact that a certain number of attendant drawbacks have been described. A good deal has been written about the danger of injecting organic fluids into the body, especially organic fluids taken from animals suffering from disease such as glanders and tuberculosis. The obvious answer to such objections is that serum is never taken from an animal so diseased. As regards glanders, if mallein—that is, the products of the glanders bacillus, from which living bacilli have been absolutely removed—is injected into the subcutaneous tissues of a healthy horse, there is usually as little disturbance, either local or general, as if a similar quantity of neutral salt solution had been injected; but if the animal has glanders a local manifestation occurs at once; a swelling at the point of injection is seen, the temperature of the animal rises, and this so regularly that anyone accustomed to the use of mallein as a diagnostic agent can determine within twelve hours whether the horse is suffering from glanders or not. By the use of tuberculin in a similar fashion the freedom of the animal from tuberculosis can be determined, so that the horse may very readily be proved to be in good health as far as these two diseases (which are the only two dangerous to man about which there is very much difficulty of diagnosis) are concerned. It has also been asserted that the horse is suffering from diphtheria, and that only the poison which is accumulated in the blood is injected into the human patient. Against this may be placed the fact that the toxine will certainly not neutralise its own action, and if we are dealing simply with toxine we should have a summative and not an antidotal effect. Many of those here have seen cases of diphtheria, at first apparently mild, gradually develop the most distressing symptoms, and nothing has been more pitiable or painful in my experience than to see the distress of the little sufferers as the disease has become more fully developed, and one has felt one's utter helplessness to relieve more than temporarily the dreadful suffering one has had to

witness, and I—for one—and I am sure that in this my feelings are shared not only by medical men, but also by those who have had to watch and wait whilst such scenes were going on, and that any remedy that promises results even far less favourable than those claimed for this method of treatment should be placed at the disposal of those who have to do battle with this terrible disease. We must improve the sanitary conditions and the general surroundings of those who are most liable to the disease, in order to prevent the disease or to keep it at as low a limit as possible, but we have also a duty to perform to those who are actually smitten down. (The Lancet, December 15, 1894, p. 1414.)

Diphtheria.—Antitoxin Treatment of.

Kossel, of Koch's Institute (*Deut. med. Woch.*, October 25, 1894), remarks that the diphtheria bacillus belongs to the eminently toxic bacteria. The diphtheria poison is obtained by inoculating bouillon-containing flasks with diphtheria culture, and in three weeks' time killing the micro-organisms by adding 0·5 per cent. phenol, or 0·3 per cent. tricresol. The clear fluid which separates out contains the diphtheria poison. If animals are injected with increasing doses of such poison, their blood is found to possess immunity-giving properties. Blood is then withdrawn, and its immunising power ascertained by mixing diphtheria poison with it. Behrin and Ehrlich call normal serum such a serum that 0·1 c.c. will suffice to render inert ten times the fatal dose of the diphtheria poison. Thus 1 c.c. of the normal serum contains 1 immunity unit. Therefore a serum of which 0·01 suffices, represents 10 times the normal serum; 500 such immunity units are necessary to cure a child with diphtheria. The clinical picture of diphtheria varies greatly, so that the diagnosis should be made by bacteriological examination. If the process has extended to the bronchi and lungs, the serum treatment is too late. When complications, including secondary infections, are present the antitoxin cannot cure with certainty, and if the poison has long been present in the body the prognosis is also doubtful. Yet the most desperate cases should be treated, as the antitoxin cannot do harm. The mortality in the Koch's Institute has permanently fallen to 16 per cent. Children treated on the first and second days have never died. Every fresh case of true diphtheria can undoubtedly be cured by a sufficient quantity of the antitoxin. Under the treatment the membrane loosens and the improvement in the general condition is marked. In fresh cases thus treated there is little fear of subsequent paralysis, and the author has never seen extension to a hitherto intact larynx. Meister Lucius and Brüning have taken over the manufacture of this antitoxin under the direction

of Behring and Ehrlich. They supply flasks containing respectively 600, 1,000, and 1,500 to 1,600 immunity units. For protection against diphtheria a quarter of flask No. 1 is only needed, but the author would not trust to such immunity lasting over two or three weeks.

W. Koerte (*Deut. med. Woch.*, November 8th) reports on a series of cases of diphtheria treated with Behring's serum, in the Urban Hospital of Berlin, between January 20 and October 27 of the present year. The total number of children treated was 132. Of these 11 were still in hospital at the date of report. Of the remaining 121, 81, or 69 per cent., were cured, and 40, or 33·1 per cent. died. The average results during the period from June, 1890, to December 31, 1893, showed 54·9 per cent. of cures and 45·1 per cent. of deaths. Thus the serum treatment had diminished the mortality by 12 per cent. Besides the 121 cases referred to, 106 cases had been treated without serum during a period when none was procurable, with 46·2 per cent. of recoveries and 53·8 per cent. of deaths. The mortality in the same epidemic was, therefore, 20·7 per cent. higher in cases not treated with serum than in those treated with it. Of the 121 cases, 43 were severe, and of these 41·8 per cent. recovered and 58·2 per cent. died. Of 47 moderately severe, 70·2 per cent. recovered and 29·8 per cent. died. Of 31 slight cases, 96·7 per cent. recovered and 3·3 per cent. died. Of 15 children under the age of 2 years, 8 recovered and 7 died. In 42 cases tracheotomy was performed with 47·6 per cent. of recoveries and 52·4 per cent. of deaths, as against 22·5 per cent. of recoveries and 77·5 per cent. of deaths in former years, showing a result of 25 per cent. more recoveries with the serum treatment after tracheotomy. Of 8 children under the age of 2 who were tracheotomised and treated with serum, 3 recovered and 5 died. Of 108 children of the same age tracheotomised before the introduction of the serum, 10 recovered and 98 died. It was found that the earlier in the course of the disease the serum was injected the better were the results. Of 37 severe and moderately severe cases in which the serum was injected within the first three days of the illness, only 8 died. The results of injections made after the third day were less favourable. The larger the initial doses the better the results. No injurious effects were noticed; urticaria occurred only in 9 cases. No influence on the temperature or on the local foci of the disease was observed in severe or moderately severe cases; on the other hand, a markedly favourable effect on the general condition was often seen in severe cases. The experiments so far are, in Koerte's opinion, favourable. More extensive clinical observations, especially in cases treated early, are, however, necessary to determine the

value of the remedy. It must be tested in a large number of severe cases in different epidemics and in different places.

Damieno (*Rif. Med.*, October 30) reports a case of diphtheria in Massei's clinic at Naples, which was successfully treated with antitoxin. The patient was a boy, aged 2 years, with well-marked naso-pharyngeal diphtheria; he had been ill six days; the temperature varied from 102° to 103° F., the throat and posterior nares were covered with false membrane, and there was albumen in the urine. The child was very drowsy and in a state of marked prostration. Bacteriologically the case was proved to be one of mixed infection with the diphtheria bacillus and streptococcus. An injection of 6 c.c. of Behring's No. 1 serum was given. A second injection was given the next day; this was at once followed by striking improvement both in the general symptoms and the local conditions, and complete recovery took place in a few days. Damieno also records (*ibid.*, November 3) a case of laryngeal diphtheria in a girl, aged 5, in whom, urgent dyspnoea having come on suddenly, intubation was performed by Massei. Immediately after an injection of 8 c.c. of Behring's serum No. 1 was given. Forty-three hours after the intubation the child's breathing was so easy that the tube was dispensed with. Rapid recovery took place. The bacteriological examination in this case does not appear to have been conclusive, but clinically the case was one of diphtheria. And there could be no doubt as to the very favourable effect of the serum on the after-course of the disease after intubation. (Epitome of the British Medical Journal, November 24, 1894, p. 83.)

Diphtheria—Antitoxin Treatment of.

Before the Cambridge Medical Society, on February 1, 1895, Dr. Latham, after giving a short history of the serum treatment of diphtheria and describing the method by which Behring's antitoxin was prepared, and the way in which the strength of the preparation was determined previous to its use, reported five cases which had been treated under his directions by the remedy. Two of the cases presented points of special interest, tracheotomy having been performed, the membranous exudations extending into the trachea and bronchi, and both patients recovering. *Case 1.*—M. C., a girl, aged 3 years. This was a severe case of diphtheria, involving the nose, fauces, and larynx, admitted on the second day of the disease with signs of laryngeal obstruction. The condition was one to give rise to anxiety. Antitoxin was injected at once. The child took nourishment well throughout. An improvement was shown eight hours after injection. Albumen was present from admission to the nineteenth day of the disease. Membrane had completely disappeared on the sixth day. Knee-jerks were absent

from the seventh to the twenty-third day of the disease. There was no paralysis of the soft palate; no rash or joint pains. Nourishment consisted of beef-tea and milk, 3 ounces every second hour. No stimulants were given. *Case 2.*—H. C., a boy, aged 3 years, admitted on the fourth day of the disease in a condition of urgent dyspnœa, with marked laryngeal stridor. Membrane was present on both tonsils and the base of the uvula. Tracheotomy was performed. An hour and a half after admission Behring's antitoxin (10 c.cm.) was injected. Three hours afterwards some improvement was noticed, but twelve hours after the injection the child died. Cover-glass preparations showed almost pure cultures of Loeffler's bacilli. The urine, which was obtained after death, contained a large amount of albumen, and acute nephritis was discovered at the post-mortem examination. *Case 3.*—S. J. N., boy, aged 4 years. Behring's antitoxin injected at 11.45 p.m. on January 3rd. On January 4, at 2.30 p.m., no improvement; antitoxin again injected. 5.30 p.m. Tracheotomy performed, much membrane being expelled, giving great relief. January 5. Child cyanosed, but relief again obtained after expulsion of large piece of membrane. This process of obstruction, only relieved by expulsion of membrane, was several times repeated, but ultimately the child recovered. There was from the first a small amount of albumen. A rash appeared on the seventeenth day of the disease, with diarrhœa and pyrexia (101°), and remained out about forty-eight hours. *Case 4.*—Girl, aged 4 years. Behring's antitoxin, No. 2, had been injected before arrival at the hospital. Admitted apparently moribund. Tracheotomy performed at once. During the performance of the operation and for some time afterwards the condition of the child was very grave. The membrane began to be expelled on the evening of the fourth day of the disease, and ceased, together with the nasal discharge, on the seventh day, when the throat also was free from membrane. On several occasions the condition of the child gave rise to much anxiety, owing to blocking of the air passages by softened membrane. It was impossible to obtain any urine. *Case 5.*—W. H. C., aged 4 years and 7 months. Temperature 103.5° . Membrane on both tonsils. Behring's antitoxin, No. 1 (15 c.cm.) injected. Next day there was much improvement, and the child did well. The diagnosis of diphtheria was verified by microscopic investigation and by cultures. (British Medical Journal, March 9, 1895, p. 538.)

Diphtheria.—Antitoxin Treatment of.

In the *Annales de l'Institut Pasteur*, September, 1894. MM. Martin and Chaillou read a paper on 300 cases of diphtheria treated by the serum of immune horses at the Hôpital des

Enfants-Malades between the 1st February and the 24th July, 1894. During this period 428 cases were sent into the diphtheria pavilion of this hospital, of which 20 died on admission. The remaining 408 received injections under the skin of the flank of 20 c.cm. of serum. The serum used had an immunising power of about 50,000 to 100,000. After injection an examination was in all cases made for the Klebs-Loeffler bacillus. In 128 it could not be found, and these must not be regarded as cases of true diphtheria, though some had croup and some false membrane. It is worthy of note that none of those not suffering from true diphtheria, but injected, contracted the disease subsequently, although they were exposed to the poison in the wards, and there is ground for believing that the injection of the serum acted as a protective. Each of the remaining cases of true diphtheria had a second injection of 10 to 20 c.cm. of serum 24 hours after the first. If the pulse and temperature remained high, still another injection of the same amount was given subsequently. Further injections were in some cases resorted to. The largest quantity used in any case was 125 c.cm., the smallest 20 c.cm. Of the total number brought to the diphtheria pavilion of the hospital 24·5 per cent. died after the habitual use of serum was commenced (between February and July). Of the 300 cases proved to suffer from true diphtheria 26 per cent. died. Now the mean death-rate from diphtheria of the children's hospital in the four years ending 1893 was 51·7 per cent., the lowest being 47·6 in 1892. It is always possible in such an ailment as diphtheria that a low death-rate may be due to the natural benignness of the epidemic, but it appears that during the same months of February, March, April, May, and June, 1894, in which the death-rate from cases admitted for diphtheria under the serum treatment only amounted to 24·5, it was 60 at another institution in Paris, the Hôpital Trousseau. Moreover, the careful investigation as to the average mortality in cases of diphtheria in the Hôpital des Enfants-Malades shows that the average mortality under ordinary treatment is not less than 50 per cent., under the serum treatment it was 26 per cent. It is stated that no change was made during the period that the serum was used in the other methods of treatment ordinarily employed, which consisted in the local application of glycerine and salicylic acid and the use of boric acid washes. The injections were not followed in the immense majority of cases by any local reaction. Three times only did abscesses form, which quickly got well. Sometimes after convalescence an urticarial rash appeared, usually without any febrile movement. The ordinary evils consecutive to diphtheria were comparatively rare in the cases treated by serum. There were some cases of paralysis of the soft palate of

short duration ; one case of lower extremity paralysis, and one case of general paralysis in a child aged nine—this case died owing to food getting into the trachea. Three children died of syncope, one 24 hours and the other 26 hours after admission. The results thus set forth point to the great advantages of the serum treatment, especially when we remember the very high mortality from diphtheria in Paris. With regard to the local treatment of diphtheria, the authors are entirely opposed to the application of any caustic or toxic substances, they object to the use of carbolic acid and sublimate, advocating boric acid containing a little Labarraque's solution, or even simply boiled water, to liquids which cannot be swallowed by a child without danger.—Larmuth—*Pharmacology and Therapeutics.* (Medical Chronicle, January, 1895, p. 279.)

Diphtheria.—Intubation and Antitoxin in.

In cases in which the disease has extended to the larynx, with consequent more or less obstruction to the respiration, it appears to be essential to recovery that some mechanical means should be adopted to maintain the integrity of the respiratory passage until the antitoxin has had time, possibly by repeated injections, to act. Roux affirms that under the influence of antitoxin the false membrane ceases to grow within twenty-four hours from the first injection, and detaches itself in from thirty-six to forty-eight hours, at the latest by the third day. The thesis I now wish to maintain is that in intubation or tubage the medical man has a safe, easy, and effective means of combating the conditions attendant upon impeded respiration, which the new system of treatment occasionally requires. In fifteen cases of intubation in diphtheria reported in detail by me the average length of time during which the tube lay in the larynx was twenty-six hours, and several of the patients who died succumbed to other causes than respiratory impediment. If the patient can be tided over twenty-four hours by means of an operation which does not require the administration of an anæsthetic and is not accompanied or followed by hemorrhage or shock, and if antitoxin be simultaneously administered, the remedy is allowed time to commence to act under the most favourable conditions. If, on the other hand, marked obstruction of the larynx has developed before the commencement of administration of the antitoxin, and if no special means be adopted to combat it, the patient may die, and, judging from some reports of cases which have appeared in the medical press, has died before he could be thoroughly brought under the influence of the remedy. From a fairly extensive experience of both tracheotomy and intubation in diphtheria I feel warranted in agreeing with Roux in the following expression of opinion. He says in the article

previously referred to :—"How many children may be spared tracheotomy if the serum were administered sooner? We can even say that with the use of serum tracheotomy should, in the great majority of cases, be replaced by tubage. It is now no longer a question of leaving a tube in the larynx for days; it will suffice more frequently to retain it during twenty-four hours or forty-eight hours to prevent imminent asphyxia, and to gain time until the false membranes detach themselves. *Tubage is the complement of the serum treatment of the future*, tracheotomy will be the exception, and greatly to the benefit of the children." (The italics are mine.) But even if a longer period than from twenty-four to forty-eight hours be necessary to allow the therapeutic effect of the antitoxin to develop it can be afforded by intubation. (Dr. Hunter Mackenzie, *The Lancet*, January 19, 1895, p. 149.)

Diphtheria.—Treatment by Loeffler's Mixture.

The discoverer of the bacillus of diphtheria has found a mixture which kills the microbe in the cultures in five seconds. It has the following composition :—Alcohol, 64 parts by volume ; toluol, 36 parts ; liquid perchloride of iron, 4 parts. To avoid the burning sensation produced by the energetic application of this remedy, M. Strübing has advised the addition of menthol. The following formula is markedly less painful :—Menthol, 10 parts ; toluol, 36 parts ; alcohol, 60 parts ; liquid perchloride of iron, 4 parts. The parts affected are allowed to be in contact with this mixture for 10 seconds, and the operation is repeated every three hours, till the local phenomena disappear ; that is to say, for four or five days. Experiments on animals have given excellent results with this mixture. During the late epidemic several medical men have used this application in 70 cases, none of which have died. In Mosler's clinic 36 cases were treated, 5 of whom died, but they were in a too advanced stage for cure by a local treatment. When this mendicament is applied to a suitable case of diphtheria, in 24 hours lowering of temperature of one or two degrees is observed. The pulse does not become slower till later. Often the general condition improves as well as under the serum treatment. When the treatment is commenced early, consecutive paralysis is never observed.—*Bull. Méd. de Paris*. (Medical Chronicle, March, 1895, p. 432.)

DIPHTHERITIC DISCHARGES.—Method of Collection of.

Considerable difficulty is often experienced in removing diphtheritic discharge, false membrane, or slough from the tonsil or fauces and in transmitting these expeditiously in a pure state to the laboratory where they are to be examined. With

the object of overcoming these difficulties I have adopted the following method:—An ordinary three-quarter inch wide test-tube is fitted with a tight plug of cotton; into this plug of cotton is inserted the end of the cedar wood handle of a small goat's-hair brush. The handle should not come quite through the plug, but be securely tied to the superfluous cotton at the mouth of the tube. The brush should be so long that it reaches close to but is not in actual contact with the deepest part of the tube. If it is desired to prevent evaporation, the end of the tube should be covered with a loose caoutchouc cap. This, however, is usually unnecessary, as the time occupied between the removal of the discharge and its transmission is never likely to exceed twenty-four hours. The tube with the enclosed brush is now sterilised in the hot-air chamber, and a printed label attached. All that the practitioner has to do is to withdraw the plug with the attached brush, to which it forms an excellent handle, while the mouth of the tube is held downwards, to scrape off some of the discharge from the affected parts with the brush, to replace the cotton plug and attached brush in the tube. In starting a culture on blood serum or other basis the brush which contains the secretion is rubbed over the surface of the medium. (Prof. Hamilton, *British Medical Journal*, February 9, 1895, p. 298.)

EXOPHTHALMIC GOITRE.—Treated with Thymus Gland.

Mr. David Owen, in December, 1893, recorded a marked case of exophthalmic goitre of twenty years' duration, for which thyroid feeding had been prescribed. The patient, in the course of a few months, had been practically restored to health, all the symptoms having subsided, a hypertrophied heart, the result of long-standing palpitation, alone remaining. I then stated that the patient had, through a mistake of his wife, taken a quarter of a pound of thyroid on two consecutive days. This statement caused Dr. Hector Mackenzie to write to me, and draw my attention to the fact that the two-lobed gland only weighed 80 grains, so that a quarter of a pound would mean twenty whole glands. On reinvestigating the matter, I found that the patient had not been supplied with thyroid at all, but with thymus. It should be well known that butchers, though well acquainted with thymus—those in this locality knowing the cervical part as the neck-berg, and the thoracic part as the heart-berg—are ignorant of the existence of the thyroid gland. This can be accounted for both by its small size and its great resemblance to muscle, being distinguished, however, from the latter by its greater firmness and freedom from attachments. On the other hand, the thymus is much larger, and occupies a prominent position in front of the trachea; and, being much

paler than the surrounding structures, is easily distinguished from them. In January, 1894, the thymus was discontinued, much against the wish of the patient, who had acquired great faith in its efficacy. At first after it was left off no change was observed, but afterwards he felt less capable of exertion, and complained of palpitation being easily produced. On March 20 the outlines of the thyroid, which had become imperceptible whilst under treatment, could be distinctly felt and seen. The pulse-rate when he entered the room was 110, but after ten minutes' rest had fallen to 84. The thymus was afterwards resumed with great benefit. I saw the patient last on July 25, when the improvement in his condition was very remarkable. Although he had been engaged in most laborious work twelve hours daily for several weeks, he felt perfectly well. He has gained greatly in flesh; though formerly very thin, he is now well nourished. Before treatment he was not a day without palpitation, and the slightest exertion fatigued him. He has now been perfectly free from palpitation for six months, and does not feel tired even after a heavy day's work. The pulse is 72, though before taking thymus it was constantly over 120. The eye symptoms have disappeared; the thyroid swelling is no longer present; melancholia is replaced by a feeling of well-being. He has taken one lobe of neckberg—the cervical portion of the thymus—three or four times a week. He states that he has several times discontinued the gland for a time, but, finding himself getting worse, has resumed it, always with immediate benefit. For the last two months he has taken one lobe a week. In thyroidism and in Graves's disease, in which most likely there is hypersecretion on the part of the thyroid gland, there is usually loss of flesh, whilst what is known of thymus points rather to its function being to prevent emaciation, as is evidenced by its enlargement in hibernating animals, in whom the thymus persists throughout life. Landa's experiments show, too, that there may be oppositeness between two vascular glands. He observed that although the simultaneous extirpation of thyroid gland and spleen did not produce myxoedema, this disease was set up when only the thyroid was removed. The probability that thymus may be found useful in exophthalmic goitre is further supported by the fact that during infancy, when the thymus is active, this disease is almost unknown, the liability to it being greatly increased after the atrophy of the thymus. According to Fagge, out of six or seven necropsies on cases of exophthalmic goitre made at Guy's Hospital since 1868, in two the thymus was found to be enlarged. In these two the hypertrophy might be the result of a physiological attempt to provide an antidote in a disease which does frequently undergo spontaneous cure, possibly as a result of the action of the thymus. (*British Medical Journal*, February 16, 1895, p. 361.)

EXTERNAL APPLICATION OF GUAIACOL IN FEVER.

S. T. Barboszewicz (*Yuzno-Russkaia Meditsinskaiia Gazeta*, Nos. 23 and 24, 1894) having applied this method 65 times in the treatment of febrile cases, draws the following conclusions:—(1) Guaiacol is an excellent antipyretic; of 65 cases, only in 5 the results were *nil*, and only in 9 the temperature subsequently rose up to the primary height. The maximum effects (2.5° to 3° C.) occurred in phthisis, the depression in a majority of cases varying between 1.2 and 1.5° C. (2) The drug does not give rise to collapse, even in phthisical subjects with large cavities. In these patients, however, the application is almost invariably followed, in from two to four hours, by perspiration and rigors; (3) compresses are the best mode of application; (4) chemically pure crystalline guaiacol should be preferred to the ordinary fluid preparation, since it allows a better dosage, and does not irritate the skin, even when rubbed in. (Epitome of the British Medical Journal, November 17, 1894, p. 79.)

FEEDING BY THE STOMACH-TUBE IN DIPHTHERIA.

One of the most serious difficulties met with by the physician who is called upon to treat the diseases affecting the throat is the inability of the patient to take a proper amount of nourishment. The cause of this is to be found partly in the mechanical obstruction produced by the swelling of the parts in certain diseases, or by paralysis of certain muscles in others, and in part also by the fear of the pain or discomfort produced by the attempt to swallow. This is especially true of cases after the operation of intubation of the larynx, where, owing to a mechanical interference with the act of swallowing, regurgitation of the food into the larynx may occur, causing a violent paroxysm of coughing. This is frequently quite sufficient to cause a child to absolutely refuse all forms of nourishment. As it is in diphtheria that we find these conditions present more than in any other disease, the importance of the subject becomes at once apparent. We have in this disease an active and deadly infection which rapidly destroys the vitality of the patient, and a lack of nourishment at a critical time may baffle our attempts to aid the system to resist this poisoning, and may result in the gravest disaster. Many attempts have been made to nourish patients under these circumstances. Rectal alimentation has proved useful in many cases, but has fallen short of the desired effect because of the inability of the bowel to retain or absorb the proper amount of nourishment. We are, therefore, forced to rely upon some method of feeding

which will permit food to be carried into the stomach without the act of swallowing, and for this purpose the systematic use of the stomach-tube possesses advantages over any other method. To obtain satisfactory results, and to prevent undue exhaustion in the child, certain precautions must be observed. Two assistants are required. The child is rolled in a blanket with the hands by the sides. The first assistant sits in a chair near the bedside, and holds the child firmly in a reclining position upon his left knee. The second assistant holds the patient's head immovable. A soft-rubber catheter, to which a funnel is attached, is lubricated and introduced into the nostril with the eyelet on the under side, as it offers less resistance in entering the naso-pharynx. For nourishment, cream with about 20 per cent. of fat is used; and to aid digestion, Metcalf's liquor pancreaticus and Fairchild's essence of pepsin in equal parts are used, also brandy, tincture of nuxvomica, and tincture of digitalis. Any preparation of iron or any other liquid medicine may be added according to circumstances. (Dr. Alexander Morrison, Boston Medical and Surgical Journal, February 7, 1895, p. 127.)

GUAIACOL.—External Use of as an Antipyretic.

Brill (*Centralbl. f. inn. Med.*, November 24, 1894) refers to the unpleasant symptoms which have been noted after the external application of guaiacol. 1 c.cm. was first applied, and if without result 1.5 to 2 c.cm.; more than 3 c.cm. was never used. Smaller doses are without ill effects, but they cannot bring down the temperature. By increasing the dose, the unpleasant symptoms appear, and thus the value of the results obtained may be very doubtful. These unpleasant symptoms are profuse sweating, feeling of weakness, and even collapse. These results were such as to make him give up the use of guaiacol as an antipyretic. He then investigated the antineuralgic action of the drug. In 22 suitable cases, mostly of rheumatic pains, the external application of guaiacol was distinctly useful. The painful parts were painted with guaiacol as rapidly as possible to prevent evaporation; it was then rubbed in, and the parts covered with gutta-percha. No unpleasant effect on the skin was noted. The antipyretic effect of guaiacol is due to its absorption through the skin and its action on the heat centres. The author concludes that guaiacol applied externally in doses of 1.5 to 3 c.cm. acts energetically as an antipyretic, but its use as such is not to be recommended, owing to unpleasant by-effects. In doses of 0.75 to 1.5 it has an antineuralgic action in the most varied diseases, and is without unpleasant consequences. (Epitome of the British Medical Journal, December 22, 1894, p. 99.)

ICTERUS NEONATORUM.

Schmidt (*Archiv für Gynäkologie*, 1893, B. xlv., H. 2) has made icterus neonatorum the subject of a series of observations, especially studying the relationship between this disease and the time of section of the umbilical cord, 149 children were observed; of these 50 were separated from the umbilical cord at once, the remainder after some time, usually after placental separation. Of the latter 80, or 53·7 per cent., were icteric. Thirty-five premature births were observed, and 114 at term. Of the mature births, 53 were icteric. Male children seemed more predisposed to the disease than female, the weak more than the strong. Whether, other things being equal, icterus interferes with the development of the child, is hard to decide, since it affects those already weak in preference. In a large proportion of cases the disease appears between the first and fifth days. As to causation, several authors ascribe it to late section of the cord, whereby a greater mass of blood is thrown from the placenta into the child's circulation, and a great destruction of red blood-corpuscles and colouring matter ensues, followed by icterus. The uterine compression empties placental blood into the child's system. To test this view 50 children were at once separated from the cord at birth, and 100 later; mostly after separation of the placenta. Of the 50, 36 became icteric, and 14 remained unaffected. Of the 100, 71 were observed, out of these, 30 were icteric and 41 remained well. The intensity of colour and length of duration of the jaundice were more marked in those early separated than in others. As a whole, those children whose cords were separated late became icteric in less number and intensity than those detached early. (*The American Journal of the Medical Sciences*, October, 1894, p. 487.)

INFANTILE SCURVY.—Hæmaturia in.

Dr. Gee, and subsequently Dr. John Thomson, have pointed out that occasionally hæmaturia may be almost the solitary manifestation of scurvy in infants, and that it may immediately vanish after the employment of fresh food. Sir William Roberts has told me that he has observed examples of this scorbutic hæmaturia without other symptoms, but responding to anti-scorbutic diet. I have notes of two cases of hæmaturia in which, though no bone lesions were to be felt other than rickets, there was excessive irritability, resentment to the slightest touch of the lower limbs, and some amount of anæmia. They had been fed on preserved food, and one of them immediately responded to antiscorbutics; the other I have been unable to trace. (Dr. Barlow's Bradshaw Lecture, *Lancet*, Nov. 10, 1894, p. 1078.)

[See also articles by Dr. Barlow at pp. 152 and 157 of this volume of the *Retropect.*]

Infantile Scurvy—The Social Relations, &c.

One of the most suggestive results of the collective experience relates to the social state of the children amongst whom the disease predominantly occurs. The clinical *tout ensemble* of a typical example is as striking in its own way as that of myxœdema or acromegaly. If this were a common disease in our large out-patient departments of the general hospitals and the children's hospitals it would be recognised; but amongst the very poor it is not a common disease. Of the thirty-three typical examples which have come under my care since 1883 only six were hospital cases. The others were the children of well-to-do people, with healthy surroundings and good homes. There was nothing to suggest either wilful neglect or faulty hygiene in any gross sense. We may speak with confidence of what we ourselves observe as to the relative frequency of a disease in different groups of people, but it is somewhat rash to generalise as to the change of type of any disease in different times. Nevertheless, I will hazard the statement that this disease is probably more frequent now than, say, thirty years ago. It is, I think, inconceivable that men of the authority of Jenner and West and Hillier should not have insisted upon it if this group of symptoms had often occurred within the common range of their experience. I observe that Dr. Northrup, in his valuable *résumé* of the American experience, states that it seems probable that the disease is increasing in frequency in America. Is there anything noteworthy of late years about the bringing up of the infants of the well-to-do classes? I think it may be safely stated that besides the increasing difficulty of getting the mothers to suckle their infants there has been an enormous increase in England and America in the employment of proprietary infant foods. The proprietary foods are much more extensively used among the well-to-do than among the poor. But different forms of condensed milk have also come into extensive use, and to a considerable amount among the poor. Is there any reason why the poor, though by no means exempt from the disease in question, should suffer from it in a remarkably less degree than the rich? I believe that an important suggestion, made by Dr. Cheadle, gives a second clue to this remarkable difference. The children of the poor at a much earlier period than those of the well-to-do receive small portions of the same food as that of which their parents partake. No doubt in consequence of such indulgence there are occasional primary digestive disturbances. Nevertheless, some breaks are made in the monotony of the diet, and probably some anti-scorbutic article of food is taken. Among the children of the poor potatoes especially are given at a much earlier period than to the children of the well-to-do. Thus, although the children

of the poor are *rickety*, they are much less frequently *scorbutic* than the children of the rich. (Dr. Barlow's Bradshaw Lecture, *The Lancet*, November 10, 1894, p. 1079.)

[See also articles by Dr. Barlow, at pp. 152 and 157 of this volume of the *Retrospect*.]

Infantile Scurvy—Subdural Hemorrhage.

At the meeting of the Pathological Society, held on December 18, 1894, Dr. Wallis Ord showed an extensive subdural hemorrhage from a case of infantile scurvy. The clot occupied the whole of the vault of the cranium, but there was no sign of hemorrhage at the base. The patient had been fed on a prepared food from birth, and showed marked rickety deformity of the head, with beading of ribs, but no affection of the long bones. There had been no sign of intra-cranial pressure during life, and the child had died from an attack of acute broncho-pneumonia. There was no history of syphilis, tubercle, or hæmophilia. Feeding on fresh food and medicinal treatment had not effected much improvement in the case, which showed an extreme degree of anæmia, hæmoglobin only amounting to 10 per cent. of normal. He drew particular attention to the question of feeding, the involvement of the cranial bones with freedom of the long bones, the absence of pressure signs, and the evidence of the non-epidemic character of the disease, a twin-brother brought up in the same way being quite free from scurvy.—Dr. G. A. Sutherland said that there had been only three other cases recorded. He asked if investigation had been made into the condition of the vessels. In one case thrombosis of the basilar artery had been found. The bone in the parietal region was soft, spongy, and vascular, and this possibly explained why the hemorrhage took place in connection with the dura mater.—Dr. Wallis Ord, in reply, said that he did not examine the vessels. The bone, though thick, was very soft on section. (*The Lancet*, December 22, 1894, p. 1483.)

INFLUENZA AND EPIDEMIC PNEUMONIA.— Relationship of.

In the village of Cawdor, in Nairnshire, during the epidemic of influenza occurring in the winter of 1893-4, I was called upon to treat 64 cases of pneumonia, single or double, and of these 15 proved fatal. The mortality was chiefly amongst aged persons, although three strong healthy adults died of double pneumonia. In one authority I find hemiplegia mentioned as a rare complication of pneumonia. Curiously enough I met with three cases of this complication, and all the patients died. Two of them were aged men, but the third was a robust man who had actually passed the crisis, and seemed in a fair way to

recovery before paralysis supervened. The evidence of the contagious nature of the disease was most convincing. In many instances two or more members of one family were attacked, not simultaneously, but one after the other. One man sickened with pneumonia (double), and died on the eighth day. He was nursed by his wife, who showed symptoms of the disease two days before his death, and also fell a victim. Another man died of double pneumonia; three weeks afterwards five of his children showed the usual signs and symptoms—dulness, tubular breathing, gelatinous sputa, &c. They all recovered. In one family, consisting of an aged father, two daughters, and two sons, all the members except one daughter were attacked, and one died. The disease, with few exceptions, was limited to one lung, and very frequently the physical signs were first detected at the apex or over the upper and middle lobes. It was noteworthy that these signs appeared most frequently at the angle of the scapula, and gradually spread over the whole lung. Consolidation with tubular breathing came on rapidly. The disease pursued the usual course of croupous pneumonia. Some cases recovered after the usual crisis, some after one or more fresh invasions, and 15 ended fatally. The peculiarities of the disease in this epidemic were the seat of invasion, the comparatively light tint and extreme tenacity of the sputa, the tenderness over the liver with tendency to jaundice, and the gastric complications. Of late years it has become more and more recognised that in its sudden onset, the course of its symptoms, and its relatively constant duration pneumonia partakes more of the character of a specific fever with inflammation of the lung as its most prominent local manifestation. Bacteriology points to the same conclusion, for a definite microbe has been found in the sputum of those suffering from epidemic pneumonia, a rod-shaped organism named after its discoverer, the bacillus of Friedlaender. This fact is rendered probable also by the frequency with which pneumonia occurs in epidemics, and by the fact that it is certainly at times contagious. My own recent experience leads me strongly to adhere to the modern view that pneumonia is generally a disease of a specific and contagious nature. Does not such an epidemic as I have described teach us, as general practitioners, that something might be done, by isolation and disinfection of sputa, to limit the number of victims of this disease? The resultant mortality exceeds that of small-pox, yet the disease is not notifiable; nor does it seem to awaken any great feeling of alarm in the community. In conclusion, let me briefly glance at the relationship that seems to exist between epidemic pneumonia and the pneumonia that occurs as a sequel to influenza. I am convinced that, in the

simultaneous occurrence of these diseases, there is something more than coincidence. Previous to the appearance of influenza in 1891, pneumonia was a very rare disease in Nairnshire. During that epidemic cases were very frequent. Last winter influenza again appeared, and in its train the remarkable series of cases of pneumonia to which I have called attention. It will not be denied that in clinical features the two diseases are indistinguishable; and it is suggestive to read that Dr. Klein found the bacillus of Friedlaender—the microbe supposed to be pathognomonic of epidemic pneumonia—in large numbers in the sputa of many cases of pneumonia following upon influenza. From the foregoing remarks, the conclusion would seem to be that epidemic pneumonia is a specific contagious disease caused by a definite microbe, and that an attack of influenza leaves a patient in a state peculiarly favourable for the reception and growth of this micro-organism; in other words, pneumonia occurring as a sequel to influenza is in reality epidemic pneumonia grafted on influenza. (Dr. Cruickshank, *British Medical Journal*, February 16, 1895, p. 360.)

LEUKÆMIA.—Hypodermic Administration of Arsenic in.

Dr. S. Rummo strongly recommends (*Riforma Medica*, No. 98, 1894, quoted in *Nouveaux Remèdes*, February 8, 1895) arsenic in leukæmia and pseudo-leukæmia, administered hypodermically in the form of arsenite of soda. The ordinary Fowler's solution is painful, not only because of the lavender it contains, but because it is too concentrated. He uses a solution of arsenite of soda of the strength of two grains to the ounce, and commences with a dose of $\frac{1}{27}$ of a grain. This dose is gradually increased until, after some fifty injections have been given, nearly half a grain ($\frac{45}{100}$) is reached. Of course the patient must be very carefully watched during the whole of the treatment, which must at once be stopped on the appearance of any signs of poisoning. According to Dr. Rummo it is necessary to push the drug until signs of intolerance begin to manifest themselves. He thinks that, given in the way above recommended, it is by far the most satisfactory of all the numerous remedies proposed for leukæmia. (*The Lancet*, March 23, 1895, p. 769.)

MALAKIN AS AN ANTIPYRETIC AND ANTI-RHEUMATIC.

During the last few months, says Dr. Robert Abernethy, I have used malakin in a number of cases of pyrexia of rheumatic and other origin, and have been much struck with its good effects. Malakin, it is claimed, is a salicyliden-para-phenetidine which, in

the presence of dilute mineral acids, is decomposed into salicylic aldehyde and paraphenetidin. This decomposition taking place in the stomach, the salicylic aldehyde on being absorbed is oxidised to salicylic acid in the tissue of the body, and can be recognised in the urine. My first and most striking case was admitted into Chalmers Hospital on May 12, 1894. On admission the signs were typical of a severe attack of acute rheumatism, with copious sour perspiration. At first salicin was given in doses of 30 grs. every two hours, and was continued until the 17th, without, however, seeming to have a very marked controlling effect on the symptoms. Then the pulse and breathing became accelerated, and some consolidation was noticed at the base of the left lung. The temperature varied between 99° and 102° F. Sulphate of quinine was now substituted for the salicin, but with no effect on the temperature, though the lung condition entirely cleared up. The joints now began to improve, and on June 29 the right knee was the only one affected, though there was still a good deal of effusion in it. On this date, however, she had a very severe rigor, and the temperature rose to 104·8° F., with copious sweating and severe pain in the right knee-joint. The ice-pack was applied and brandy given, with the result that the temperature fell, and in five hours was 101·8°. The usual continued type of fever was resumed, patient continuing to lose flesh. No albumen appeared in the urine, and the articular swelling began to disappear under blistering and rest. On July 7 the temperature rose again, with rigor, to 105·4°, but fell rapidly after sponging with ice-water and the administration of stimulants. These pyrexial outbursts occurred from time to time, and towards the end of July the temperature assumed a more zig-zag course instead of its previous continued type. During the first part of August several attacks occurred—indeed, after July 12, almost daily. On August 28, malakin, 15 grs., thrice daily, was given, and at once there was cessation of all pyrexia, the temperature becoming normal, and remaining so till the date of patient's discharge. She was then quite well, fairly strong, able to walk about the ward, and all that remained was a faint systolic bruit accompanying, but not replacing, the first cardiac sound. I was so convinced of the good effect of the drug in this case, after other antipyretics had failed, that I have given it since in a good many cases of pyrexia due to various causes ; amongst others, a case of rheumatic fever, with advanced mitral disease, in which it controlled the symptoms admirably without apparently causing any considerable depression. Also in two cases of croupous pneumonia in children of 9 and 11 respectively, in which it seemed to have a beneficial effect, both making remarkably good and speedy recoveries. In short, such results I have obtained so far encourage me to make a further

trial of the drug in those cases of pyrexia in which either the phenacetin or the salicylic group have been found useful, but especially the latter, as its use seems to be attended with a minimum of the bad effects sometimes seen under the administration of those drugs. (Edinburgh Medical Journal, February, 1895, p. 692.)

MENTHOL IN DIPHTHERIA.

F. Kastorsky (*Vratch*, No. 24, 1894) reports 37 cases of diphtheria (in three adults and 34 children) treated and cured by painting with a 10 per cent. alcoholic solution of menthol. The paintings (by means of a piece of cotton wool) were usually carried out three times daily. In some cases, however, a single free application was followed by complete disappearance of false membranes within two days. A marked improvement in the patient's general condition was invariably noticed from the beginning of the treatment. The same simple method was successfully practised by the author in numerous cases of anginas of various forms, and by Trütovsky in a group of cases of scarlatinal diphtheria. The paintings are said to be painless and quite harmless. (Epitome of the British Medical Journal, October 20, 1894, p. 63.)

MYOSITIS OSSIFICANS.—A Case of.

Mr. Stephen Paget reports the following case of this rare disease :—The patient is a boy aged seven years and six months, thin and small, but fairly strong and active, and very intelligent ; his general health is not impaired. His father, aged about forty years, is in good health and has never suffered either from gout or from rheumatism, but the boy's grandfather and grandmother both had rheumatic fever twice. The child's mother, aged about thirty-five years, is in good health, and has never had rheumatism ; but her mother had rheumatic fever. One of her sisters died from cancer of the breast, and another died at the age of thirty-eight from "ulceration of the bowels." The patient is the eldest of three children ; the others are healthy and have no deformity of the toes. The mother has not lost any children, and has never had a miscarriage. The boy was healthy during the first years of his life. He had measles when six years and six months old. The deformity of his toes was noticed a week after birth. There is no history of any injury preceding his present disease. It began with a swelling behind the left ear when he was four years and six months old. The growths of bone in the pectorals and down the spine came early in the disease. His mother is certain that the growths used to shift their places, disappearing at one place and appearing at another ; but their appearance does not seem to have been preceded by

pain or swelling. *Conditions in 1892.*—The patient was at this time five years and nine months old. The following note was made at the time: "He holds his head in the position of wryneck, from contraction of the left sterno-mastoid. In each pectoral muscle, at the anterior fold of the axilla, are irregular bony nodules moving slightly with the muscles. On the right side these nodules are felt all over the pectoral muscle and are especially marked towards its insertion; here they are continuous with plates of bone under the deltoid and along the latissimus dorsi. Nodules are also felt on the origin of the serratus magnus. The latissimus dorsi presents a sharp ridge in the axilla, and is hard, but not prominent, down to the angle of the scapula; and there are two prominent masses, not fixed to bone, beneath the angle of the scapula. The scapular muscles themselves do not appear to be affected. On the left side the pectoral muscle is also infiltrated with bone; it is more nodular than the right pectoral, and the bony growths towards its insertion are more prominent. They are continuous, as on the right side, with bone in the fascia beneath the deltoid, and, though this is not quite certain, with the latissimus. The disease in the left latissimus is most apparent below the inferior angle of the scapula; but it is less marked here on the left side than on the right. The left biceps is also affected. Crepitus is felt when these growths are moved. Down each side of the spinal column is a hard ridge, more marked on the left side than on the right, which seems to be part of the latissimus dorsi. The trapezius is healthy. In each posterior triangle of the neck there is an ill-defined hardness. The right sterno-mastoid is healthy; the left is very much shortened, but no bone is felt in it save one very small nodule in its anterior edge, about an inch above the clavicle. From the anterior fold of each axilla, between the nipple line and the axillary line, a hard vertical cord, about the thickness of a No. 4 or 5 English catheter, runs straight down over the ribs and the abdominal wall, and fades away about the level of the iliac crests. The right cord is somewhat more distinct than the left; they are slightly movable and hard, but not so rigid as bone; they feel to the touch like the diseased lymphatics of cancer or like very atheromatous arteries. There are no bony growths either on the head, or in the abdominal muscles, or on the lower limbs." The child was in hospital for several weeks. Dilute phosphoric acid was given, but with no result. *Condition in 1894.*—The patient has lately made a good recovery from a mild attack of scarlet fever. The cords which ran down from the axillary folds have disappeared. The masses of bone are more fixed than they were, and most of them appear to be closely united to the skeleton. The breathing is almost wholly abdominal; the ribs move very slightly on deep

inspiration. There is some enlargement of the right os calcis. The patient has deformity of the great toes ; they are shortened and drawn inward toward the middle line of the foot, so that they come beneath and behind the second toes. The proximal phalanges seem small and ill developed. The heads of the first metatarsal bones are large. There is no deformity of the thumbs. The child has of late been taking thyroid extract, but without any result. (The Lancet, February 9, 1895, p. 339.)

MYXŒDEMA.—Its relation to Graves' Disease.

The interest in myxœdema does not centre alone in its peculiar features, but involves the broader consideration of the relation which it bears to another equally uncommon disease, viz., Graves' disease, or exophthalmic goitre. The two following cases will illustrate this point :—*Case 1.*—This patient was at one time in my service as nurse to my children. When she was 36 years of age she noticed a swelling of the thyroid gland. She had previously suffered from a feeling of fulness in the throat, accompanied by palpitation and proptosis. For these symptoms she was under treatment for two years, at the end of which time they disappeared. She, however, never felt well, and very soon fell into a state of health which was worse than the former. She noticed that her tongue became too large for her mouth, which made her speech slow and indistinct, also that she had always a bad taste in her mouth in the morning. Her urine became scanty and pale, and her periods, which formerly recurred at intervals of three weeks, were often absent for six weeks, and the loss was much diminished. Her hair became fluffy and fell out. Her gait became so uncertain that she had to crawl upstairs on her hands and knees. Sensation was impaired, the extremities were numb, and she was oppressed by a feeling of weight. The skin felt dry and leathery, whereas it had formerly been unduly moist. She slept badly and was always cold, and during the winter of 1891-92 she suffered so much from this cause that she could not go out, but sat shivering over the fire all day. Her symptoms were attributed at a London hospital to myxœdema, and she was treated by tonics and diuretics. Oddly enough, she recovered to such an extent as to be able to resume her household duties. *Case 2.*—I first saw this patient, then aged eighteen and a half years, at the end of 1889. I found her the subject of marked Graves' disease. She gave the following history :—At ten years of age she "had a shock" from falling into a pond. Shortly afterwards she had a severe fright, owing to her having accidentally set fire to some drapery. From this date her health became impaired and she suffered from palpitation, fulness of the throat, and painful prominence of the eyeballs. A year later

she was in a carriage accident and became worse. Early in 1890 she contracted measles and her temperature went up to 105° F. The attack was very severe, and the pigmentation left by the rash lasted for some months. From the date of her convalescence from measles the symptoms of Graves' disease became modified. In the intervals of my attendances I saw her frequently as a friend, and she was under my observation from first to last—nearly three years. At the end of 1891 I was asked to examine her carefully, and to give a definite opinion as to her condition, her symptoms having gradually undergone a complete change. As a result of my examination I came to the conclusion that she was suffering from myxœdema—a fact which I had suspected some months previously. Owing to the gravity of her condition I took her to Dr. Ord, who agreed that the case was one of myxœdema in a very early stage of the disease. Briefly, her symptoms were those of a disease in every way the opposite to that for which she first came under my care. In fact, she had passed from Graves' disease to myxœdema—from a condition of general exaltation with thyroid hypertrophy to one of depression with atrophy of that gland—a striking and unique illustration of the deterioration of an over-stimulated organism. (Mr. B. Campbell Gowan, *The Lancet*, February 23, 1895, p 478.)

NEW ANTIDOTES TO MORPHIA.—POTASSIUM PERMANGANATE.

Dr. Graham Chambers (*The Canadian Practitioner*, September, 1894) states that morphine is the most easily oxidised of the vegetable alkaloids, whilst potassium permanganate is a very active oxidising agent. He finds that a solution of potassium permanganate decomposes morphine hydrochloride grain for grain, and though the decomposition occurs most readily in an acid solution, it also takes place in a neutral solution, and even in presence of other organic substances, such as cane sugar, white of egg, &c. He relates experiments to show that potassium permanganate, though poisonous when injected hypodermically, is innocuous if taken by the mouth, and other experiments to prove the toxic action of morphia and the properties of potassium permanganate as an antidote. Five grains of morphine hydrochloride given subcutaneously to a dog of 39 lbs. weight produced deep morphia narcosis. Four days later five grains of morphine hydrochloride were given to the same dog, by the stomach, and followed immediately by six grains of potassium permanganate dissolved in water, the only symptoms noticeable afterwards being ineffectual attempts to vomit. He claims that potassium permanganate is an efficient antidote if taken while the morphine is still in the stomach, and thinks it probably

does good even after morphine has been absorbed. (Coutts' "Pharmacology and Therapeutics," Medical Chronicle, November, 1894, p. 123.)

OSTEO-ARTHROPATHY.

Dr. Murray reports the following interesting case:—F. W., aged 40, single, a painter, first noticed that the terminal phalanx of each thumb was enlarged and the nail discoloured six years before he came under notice. Soon afterwards the terminal joint of the left middle finger and the same joint of the right ring finger became enlarged and painful; the toes began to increase in size about the same time. The finger-joints continued to enlarge slowly to the present time. He thought that during the last two or three years the nose had enlarged and the face changed in appearance. He was under the impression also that the lower jaw was rather larger than it was twelve months before. When about 27 or 28 he had phthisis and was sent to South Africa, after which the disease appears to have been arrested, though he has had to take several voyages since to maintain his health. The nose appears to be slightly enlarged and thickened, otherwise the appearance of the face does not indicate any special change, though the patient himself thinks that there is some enlargement of the ears and chin. The circumference of the head and also of the neck has not increased. The terminal phalanx of the right ring finger is enlarged, and the nail is broadened, discoloured, and grooved longitudinally. The terminal joint of this finger is enlarged and semi-flexed. The enlargement of the joint is fairly uniform and is soft on the extensor aspect. The circumference measures $2\frac{1}{4}$ inches, whereas the corresponding joint on the left measures an inch and a-half in circumference. Both thumbs are considerably enlarged, and the nails are broad, discoloured and grooved. The terminal phalanx, nail, and joint of the left middle finger are enlarged in the same manner as on the right ring finger, the circumference of the joint being $2\frac{1}{4}$ inches, half an inch greater than that of the same joint of the right middle finger. In the palm of each hand there is a band of Dupuytren's contraction, which is connected with the ring finger on the right and with the middle finger on the left; thus the contraction has developed in connection with the fingers in which the enlargement of the terminal joints has taken place. There is some enlargement of the feet, and larger boots are now worn in consequence. The metatarsophalangeal joint of the left great toe is enlarged. The phalanges of this toe are enlarged, especially in a vertical direction. The phalanges of the other toes appear to be somewhat enlarged also. On the right there is a similar enlargement of the toes,

but it is not so marked as on the left. In other respects the feet do not look larger than usual. There is an area of dulness on percussion over the apex of the right lung in front. There are, however, no signs of active disease, so that this is probably the site of the tuberculous disease detected twelve years ago, which became arrested after a sea voyage to the Cape. The chief features in this case are the peculiar enlargement of certain terminal phalanges and joints in association with Dupuytren's palmar contractions and old pulmonary disease. The case is a peculiar one, and differs in many ways from both acromegaly and hypertrophic pulmonary osteo-arthropathy as described by Marie. Mr. Jonathan Hutchinson, who has been kind enough to examine the patient, has expressed the opinion that it is a case of pulmonary osteo-arthritis, complicated by a tendency to gout, due to his occupation as a painter, and evidenced by the development of Dupuytren's contractions in the palms. (*British Medical Journal*, February 9, 1895, p. 294.)

POLYMYOSITIS.

Polymyositis, or inflammation of the voluntary muscles, is a very rare affection, which was first described in 1887 by Wagner, Hepp, and Unverricht. Since then other cases have been described, in all about 30. In only 18 of these, however, does Gouget regard the diagnosis well established, and his paper forms a résumé of the subject, based on these cases. The onset of the disease is generally insidious; acute onset is exceptional. At first the patient complains of unusual fatigue, sometimes of headache, vertigo, cough, and signs of bronchitis, or gastric symptoms. The period of invasion is of variable duration, from one or two days to a week. Then local symptoms appear. These consist, at first, of dragging pains in different muscles; the pains are increased by movement and by pressure, sometimes the least touch is sufficient to produce cramps. These may become very severe, giving rise to insomnia, sometimes delirium, hallucinations (in the alcoholic), and causing the patient to cry out incessantly. Soon there is noticed, on palpation, a rigidity of the muscles, which appear in a state of permanent tonic contraction. The patient is obliged to remain in bed. Usually the muscles of the limbs are affected before those of the trunk, and those of the inferior extremities before those of the superior. The muscles of the calf are first affected; sometimes those of the feet. The extension of the disease to the different muscles occurs in an irregular manner. The pains extend gradually from the calf to the foot and to the thigh, then to the other leg, to the arms or to the trunk. Soon œdema occurs in the painful regions. The swollen parts are generally firm, and do not retain the impression of the finger.

The œdema affects the muscles ; the outlines of the different muscular masses become indistinct, and they appear fused with each other. In some rare cases palpation gives a sensation of pseudo-fluctuation at one or more points. In general, the muscles are swollen and of a uniform consistence. The swelling of the limb may become very great. The œdema and pain produce more or less marked muscular impotence. The patient may be unable to sit up in bed, or to bring the hand to the mouth, or all movement may become impossible. The œdema is accompanied almost constantly with a skin rash, most frequently with an erysipeloid rash ; at other times with roseola, urticaria, or purpura. These different eruptions may occur in the same patient. The other symptoms are less constant, but two are the more frequent—profuse sweating, especially at night, and hypertrophy of the spleen. Fever is present, but does not correspond to any regular type, and is never very high. It is only exceptionally that it reaches 39.5° at night ; generally it varies between 38° and 39° C. It commences, as a rule, with the muscular pain, but ceases definitely at the end of some days, in spite of the persistence of the pains. The tendon reflexes are sometimes abolished, sometimes present. Any of the voluntary muscles may be affected, but the muscles of the limbs, especially the extensors, are most often involved ; then the muscles of the shoulder, the back, the thorax, the abdomen, finally those of the neck and face. The eyes may be greatly swollen. The muscles of the limbs are affected in all or almost all cases ; those of the trunk in more than half ; those of the face in more than a third. Briefly stated, then, the symptoms are—muscular pains, with swelling of muscles, subcutaneous œdema, and an exanthematous rash. The patient may recover or the disease may extend to the muscles of respiration, mastication, and deglutition, and, as a result, food may find its way into the air passages and broncho-pneumonia may occur. In 18 cases of undoubted polymyositis 10 died and 8 recovered. Pathological examination has revealed serous infiltration of the subcutaneous tissue, with here and there small hemorrhagic extravasations. The muscles are pale, often mottled with hemorrhages, œdematous, and friable. Microscopical examination shows the interfascicular and even the interfibrillary cellular tissue distended and infiltrated with small cells. This tissue contains vessels much distended with blood ; in many places the vessels have ruptured, and small hemorrhages are seen. The transverse striation of the muscle-fibres is generally less marked, sometimes indistinct ; or the fibres are simply atrophied, or granular. Most frequently they present fatty degeneration. Sometimes vacuoles are observed in the fibres. No changes in the nerve fibres, and no evidences.

of trichinosis have been found. *Differential Diagnosis.*—Trichinosis is certainly the disease which most resembles polymyositis. In both cases there are the same pains, with swelling and rigidity of the muscles affected; the same œdema, skin rashes, and perspiration. But in trichinosis the muscular pains are preceded by much more pronounced gastro-intestinal symptoms. The ocular muscles are generally spared in polymyositis, but are frequently affected in trichinosis. Also, the muscles of the face and larynx, the muscles of mastication and the diaphragm are more frequently attacked in trichinosis; the facial œdema occurs earlier, and is more marked and more persistent. Only persons who have eaten raw pork, or pork insufficiently cooked, suffer from trichinosis. After trichinosis, the affection which most resembles polymyositis is multiple neuritis. In both the muscles are tender, but in multiple neuritis there is often pain on pressure of the nerve trunks, whilst this symptom is absent in polymyositis. Pain on pressure of the nerve trunks would be strong evidence in favour of neuritis, but since the symptom is not always present in neuritis, its absence in any given case would not be conclusive evidence in favour of polymyositis. In polymyositis the symmetry is less constant, and the œdema more marked; also there is no affection of cutaneous sensibility, and early and rapid muscular atrophy does not occur. In muscular rheumatism, muscular pain is present; but there is no swelling of the muscles, and recovery occurs without any complication of the muscles of the pharynx. (Mr. R. T. Williamson, *Medical Chronicle*, November, 1894, p. 115.)

SCARLET FEVER.—Perforation of Soft Palate in.

At the Pathological Society, on November 6, 1894, Dr. E. W. Goodall read a paper on "Perforation of the Soft Palate in Scarlet Fever," and showed a specimen which was taken from a child aged 6 years, admitted into the Eastern Hospital, Homerton, with scarlatina anginosa. The perforation was first observed four days before death. There was a large perforation in the left anterior pillar of the fauces, extensive ulceration of the right anterior pillar, ulceration of the uvula, and sloughing of the tonsils. He had seen 14 cases of perforation of the soft palate in scarlet fever. In 2 cases there were three perforations; in 3 cases, two; and in 9 cases, one. They occurred at dates varying from the ninth to the twenty-eighth day of the disease. The perforations were usually to the side of the anterior arch. They might persist for several weeks; at any rate, in some cases they could still be seen when the patient left the hospital. In only two cases had he seen such perforations occur in diphtheria. (*The Lancet*, November 10, 1894, p. 1095.)

SCURVY RICKETS.

At the Manchester Medical Society on November 7, 1894, Dr. Ashby read a paper on the etiology of so-called "scurvy rickets." He referred to upwards of 30 cases which he had seen in which careful notes had been taken of their dietary up to the time of the development of the symptoms. The commonest food employed had been pancreatised milk. Not one of the cases had been fed at the breast; several had had fresh milk with some starchy food. He emphasised the fact that the symptoms had developed while taking fresh boiled milk, in one case while taking raw beef juice, in another a raw egg daily, and in one case boiled mashed potatoes. In all his cases there was marked rickets. He was not convinced that the hemorrhagic diathesis which sometimes accompanied severe cases of rickets was true scurvy. (*British Medical Journal*, Nov. 24, 1894, p. 1178.)

SCURVY.—Subdural Hemorrhage in.

At the Pathological Society on December 18, 1894, Dr. Wallis Ord showed an extensive subdural hemorrhage from a case of infantile scurvy. The clot occupied the whole of the vault of the cranium, but there was no sign of hemorrhage at the base. The patient had been fed on a proprietary food from birth, and showed marked rickety deformity of the head with beading of the ribs but no affection of the long bones. There had been no signs of intracranial pressure during life, and the child had died of an attack of acute broncho-pneumonia. There was no history of syphilis, tubercle, or hæmophilia. Feeding on fresh food and medicinal treatment had not affected much improvement in the case, which showed an extreme degree of anæmia, hæmoglobin only amounting to 10 per cent. of normal. The author drew particular attention to the question of feeding, the involvement of the cranial bones, with freedom of the long bones, the absence of pressure signs, and the evidence of the non-epidemic character of the disease, a twin brother brought up in the same way being quite free from scurvy.

Dr. H. Sutherland had seen three cases of similar nature. In one there was thrombosis of the basilar artery, and he inquired what was the condition of vessels in Dr. Ord's case. He associated the hemorrhage in the latter instance with the great vascularity of the calvaria. (*British Medical Journal*, December 22, 1894, p. 1430.)

SODIUM SALICYLATE IN THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM.

M. Henri Huchard writes in the *Journal des praticiens* that there are three things to be strictly observed in the administration of this remedy:—(1) It should be prescribed in large

quantities from the beginning of multi-articular rheumatism ; (2) these quantities should be divided into small doses ; (3) its administration should be continued after the pains have ceased. With regard to the early administration in large quantities, M. Huchard says that experience has shown that its action is all the better when the rheumatism is acute and recent ; also that early treatment prevents cardiac complications, which are often manifested on the fourth or fifth day, and not always after the eighth or tenth day, as was formerly believed. The administration of this remedy should be urged all the more since, although it may prevent endocarditis and pericarditis, it has no action on these complications once they have been established. Certain physicians say that sodium salicylate is capable of producing a certain cardiac erethism which is not without influence in the production of endocarditis. This is an error. The remedy has no action on the heart except when given in a toxic dose. M. Huchard prescribes the following doses :—For children under a year old, from 8 to 15 grains ; for those between two and five years, 30 grains ; for those of six years, 45 grains ; for those between six and ten years old, from 45 to 60 grains ; for those over ten years, from 60 to 75 grains. With regard to the administration of the remedy in small doses, M. Huchard says :—(1) Medicines that are eliminated slowly, such as digitalis and morphine, for example, should be given in a single large dose, because the organism charges itself with the division into small doses. (2) Medicines that are quickly eliminated should be given in small and repeated doses if it is desired to make a longer and more complete impression on the organism. Now, sodium salicylate is a medicine that is eliminated almost as rapidly as the iodides. It manifests itself in the urine in from five to six minutes after its administration, and it takes, in ordinary cases, from twenty-four to forty-eight hours to become eliminated ; that is, when the kidneys are not affected with organic or functional insufficiency. The administration of this remedy, says M. Huchard, should be continued in smaller doses for at least twelve days after the pains have stopped, 60 grains, then 45, being given, in order to avoid a relapse. M. Huchard says that rheumatism rarely provokes albuminuria, but if it occurs during the course of an acute attack of the disease it is not a contraindication of the employment of the salicylate. If, however, albuminuria precedes an acute attack, when it is due to a renal lesion, to nephritis compromising more or less the permeability of the organ, then the salicylate is contraindicated. It may be given also to pregnant women, although in these cases one must proceed with great prudence, and give smaller doses, carefully watching the action of the medicine. Sodium salicylate may be given in solution or in

capsules of 15 grains each, which must be carefully taken in a certain quantity of liquid—for example, in half-a-glass of some alkaline water; for sodium salicylate irritates the mucous membrane with which it comes in contact. It should then be diluted as much as possible, and never taken in a concentrated solution. (New York Medical Journal, January 12, 1895, p. 61.)

SPLENIC LEUCOCYTHEMIA TREATED WITH ARSENIC AND OXYGEN.

At the Clinical Society on November 23, 1894, Dr. Frederick Taylor described a case. The patient was aged twenty-five, and was admitted into Guy's Hospital on November 2, 1892. He noticed about five months previously that his abdomen was hard all over, and he had been losing strength and colour for about a year. He had continued at work as a policeman, and had had good appetite, but he had been short of breath, and had had attacks of epistaxis. On admission, he presented the characteristic feature of a case of splenic leukæmia. The left half of the abdomen was occupied by the spleen, which projected $2\frac{7}{8}$ inches to the right of the middle line at a point $1\frac{1}{4}$ inch above the umbilicus. The blood contained a large excess of leucocytes. They were estimated at 1,000,000 in the cubic millimetre, while the red corpuscles were 1,880,000. The hæmoglobin was 40 per cent. of the normal. The lymphatic glands were normal, the optic discs normal, and the urine free from albumen. He was ordered 5 minims of liq. arsenicalis three times a day, and 30 litres of oxygen by inhalation daily. The dose of liq. arsenicalis was increased by 2 minims every four or five days until it reached 45 on November 27. On November 19 the red corpuscles had increased to 3,080,000 per cubic millimetre, the leucocytes had fallen to 470,000. A decided diminution in the size of the spleen was noted on November 28. On December 5, the red corpuscles were about the same, but the leucocytes were only 10,000 per cubic millimetre. A fortnight later the red corpuscles had increased to 3,630,000, or 72·6 per cent.; the leucocytes had risen again to 20,000, which might be regarded as about $2\frac{1}{2}$ times the normal number for a cubic millimetre. He was discharged in January, 1893, when the anterior margin of the spleen was 2 inches to the left of the umbilicus, that is, had receded nearly 5 inches from its first position, while all the other measurements showed marked decrease. Since leaving the hospital he had been in the country, with varying conditions of health. In August, 1894, his spleen was said to be extremely enlarged. Dr. Taylor stated that he had never before in a case of leukæmia seen such rapid improvement, both as regards the leucocytes and the spleen, from any treatment as occurred in this case, though

it must be admitted that the man was not cured. Still, it was likely that the disease was delayed. The author referred to cases treated with oxygen inhalations by Kirnberger, Sticker, and others, and pointed out the small proportion that the dose of oxygen, 30 litres daily, held to the total amount normally breathed; in other cases he should certainly try more. (British Medical Journal, December 1, 1894, p. 1240.)

SUBNORMAL TEMPERATURE OF THE BODY.

Janssen, in the *Deutsches Archiv für klin. Med.*, Bd. liii., gives a detailed account of the various causes which may produce a subnormal temperature, basing his review on the records of 400 cases at the Kiel Medical Clinic, and on cases reported in medical literature. A very low temperature may occur:—(1) After the direct withdrawal of heat from the body, as in cases of exposure, of unconscious or drunken persons in a very cold atmosphere, or after immersion in very cold water. (2) After the loss of great quantities of fluids from the body, as in severe diarrhoea, enteritis, cholera, or profuse hemorrhage. (3) In conditions of cachexia and inanition, such as cancer of various parts of the alimentary canal, severe forms of diabetes, pernicious anæmia; during convalescence from febrile affections, and in many chronic mental diseases. (4) In grave circulatory disturbances, as in cardiac failure. (5) In various diseases of the central nervous system, in tuberculous meningitis, at the onset of cerebral hemorrhage and embolism, in some cases of brain tumour, and in general paralysis of the insane. (6) After irritation of sensory nerves, as in intestinal strangulation, in renal and gall stone colic, internal perforations of the intestines, &c., and after surgical operations. (7) In extensive skin affections, such as scleroderma and extensive burns. (8) After fevers, when the temperature may long remain subnormal; or in the course of certain fevers, as in pyæmia. (9) In cases of poisoning by phosphorus, atropine, morphine, carbolic acid, and in alcoholic intoxication; also in the autointoxication of uræmia and in diabetic coma. In some healthy persons subnormal temperatures are occasionally observed without any apparent cause. Numerous examples of very low temperatures in the above-mentioned diseases are given in the original, and Janssen concludes that subnormal temperatures occur much more frequently than is generally supposed, and that a depression under 33° C. (91·4° F.) is by no means rare. The facts brought forward by the author also show that low temperatures *per se* are not grave prognostic indications. Very low temperatures may occur without any symptoms of collapse, and in severe collapse the temperature may be normal. (Epitome of the British Medical Journal, December 15, 1894, p. 96.)

SULPHONAL AND TRIONAL.

Schaumann (*Therap. Monats.*, August, 1894) has investigated the action of these agents on metabolism. Morphine considerably influences metabolism and the nutrition of the patient, and the evil effects of its long-continued use are in no small measure to be attributed to these facts. Chloral hydrate has much the same action on the tissues. Similar investigations made with sulphonal and trional have hitherto yielded inclusive results. The author has made experiments upon himself. He found that trional had the more marked hypnotic effect. After putting himself on a given diet and producing nitrogenous equilibrium, he was able to show that neither trional nor sulphonal, even in large doses, has any action on metabolism. Hence the superiority of these agents over chloral hydrate, especially when it is considered that the latter also acts on the heart.—*British Medical Journal*, January 26, 1895. (Periscope, *Edinburgh Medical Journal*, March, 1895, p. 849.)

THYROIDECTOMY IN GRAVES' DISEASE.

In a paper on the above subject read before the American Neurological Association, at the Annual Meeting, May 30, 31, and June 1, 1894, Dr. J. Arthur Booth, after reporting two successful cases, stated the following conclusions:—(1) It was by no means decided that a mere excess of the thyroid secretion was the sole and essential factor in Graves' disease; but, as microscopical examination had demonstrated an enormous hyperplasia of the secreting structure, it was certainly reasonable to suppose that these changes must have some profound effect both on the quantity and on the quality of the secretion. (2) If altered structure and not size was the test of the disease, then thyroidectomy should be considered, even in those cases where there was little or no enlargement of the thyroid. (3) Cases of Graves' disease might be entirely cured by thyroidectomy. How this was to be brought about was not clear as yet. It might possibly be by one of three ways, viz., a diminution of the functional activity of the gland substance; a relief of the stretching and irritation of the sympathetic nerve fibres; or finally the removal of pressure. (*New York Medical Journal*, November 24, 1894, p. 666.)

THYROID FEEDING IN BASEDOW'S DISEASE.

Treating Basedow's disease by the administration of thyroids is in opposition to much that has recently been written concerning the pathogenesis of this disease, but this is what Dr. Voisin (Medical Society of the Hospitals, Paris) has recently reported. A young woman affected with exophthalmic goitre was given the thyroid gland of the sheep to the amount of two drachms

daily. At the end of two weeks the tachycardia had reduced one-third, the goitre had considerably diminished, as had the exophthalmus. When the case was reported the only symptoms of the disease were slight swelling of the neck and slight exophthalmus. Drs. Dreyfus, Brisac, and Bécère expressed their opinion that thyroid feeding tends to aggravate the disease and increase its symptoms rather than cure it. (New York Medical Record, November 24, 1894, p. 671.)

“THYROIDISM”: its Relation to Exophthalmic Goitre and to Hysteria.

The *Gazette médicale de Paris* for October 20 contains a report of a recent meeting of the *Société médicale des Hôpitaux*, at which M. Bécère presented a woman, 31 years of age, who had recovered from myxœdema after treatment with the thyroid glands of sheep. She had taken, by mistake, at the beginning of the treatment, three ounces of the gland in eleven days, and this excessive dose had given rise to symptoms of thyroid intoxication. English authors, said M. Bécère, have described these symptoms as tachycardia, instability of the pulse, elevation of the temperature, insomnia, agitation, polyuria, glycosuria, albuminuria, and partial paraplegia, with a sensation of heat and sweating. M. Bécère had further observed an acceleration of respiration, transitory trembling in the arms, exophthalmia, and a staring expression of the eyes. Was there not, he asked, a striking resemblance between these symptoms and those of exophthalmic goitre? Was not their appearance in exophthalmic goitre allied, perhaps, to a supersecretion of the thyroid gland? Furthermore, M. Bécère had seen that, during the course of his treatment, the patient had had distinctly hysterical symptoms, although there had been no previous neuropathic symptoms, such as aphasia, monoplegia, and anæsthesia of the right arm. Might it not be concluded from this, asked M. Bécère, that the thyroid juice excreted in excess was one of the exciting agents of hysteria? Furthermore, he said, when thyroidism appeared in an hysterical person, it roused hysteria in her, as other intoxications did. M. Bécère thought that the syndrome of exophthalmic goitre denoted supersecretion by the thyroid gland, and that it acted like the poisonings that proved exciting causes of hysterical outbreaks. (Medical Record, December 1, 1894, p. 704.)

TRIONAL IN SLEEPLESSNESS IN CHILDREN.

Trional, which is, chemically speaking, sulphonal with an additional ethyl group, has of late been used to a considerable extent by German practitioners in insomnia, especially that due to nervous and mental disease. Its suitability for children has

recently been pointed out by Dr. A. Claus, of Ghent. He finds that it is especially valuable in the nightmares or "night terrors" to which nervous children are so subject, and also where the sleeplessness is associated with chorea or convulsions. It does not disturb the mental, respiratory, or circulatory functions, and acts rather beneficially than otherwise on the digestion. It does not appear to be so suitable for alcoholic insomnia as chloral, and it has no analgesic action, so that it is of but little use to prescribe it when the sleeplessness results from pain. As to undesirable effects, in one case a child five years old, after a dose of 10 grains, was found next day to walk unsteadily, the power of co-ordination being interfered with. The dose was diminished to $7\frac{1}{2}$ grains, and no further trouble was experienced. These smaller doses were continued for a week, when the child was able to sleep in its usual manner. This was the only instance in which any unpleasant action was caused. The doses recommended by Dr. Claus are as follows :—For children of less than twelve months of age, 3 to 6 grains ; for those between one and two years, 6 to 12 grains ; for those between two and six years, 12 to 18 grains ; and for older children up to ten years, 18 to 23 grains. The powder can be given in warm milk, or, better still, in jam or honey, half an hour after supper, or at latest a quarter of an hour before bedtime. It may be prescribed nightly for some considerable time if necessary, as it does not appear to lose its effect when given continuously. (The Lancet, January 5, 1895, p. 49.)

TRIONAL.—Note on the Hypnotic Action of.

M. Vogt (*Bulletin Général de Thérapeutique*, November 25, 1894) made use of this drug in several cases of insomnia in neurasthenics ; the subjects were free from any painful malady to account for their loss of sleep. Usually these cases are best treated by dietetic and hygienic means, but as a rule they do not submit to the necessary discipline. Among true hypnotics, sulphonal and trional are the most manageable. Sulphonal is variable in the rapidity and manner of its action ; the hypnotic effect is directly proportionate to its absorption from the intestine, and owing to its insolubility this may be prolonged. Hæmatoporphyrin in the urine has been noted from taking the drug ; in such cases the urine is always strongly acid, and Professor Müller has successfully treated this symptom by high doses of the bicarbonate of soda. Trional (diethylsulphone-methyl-ethylin-ethane) is closely akin to sulphonal, and a little bicarbonate of soda ought to be given during the day to patients taking trional. Over sulphonal it has the great advantage of being soluble, and consequently it has a prompt action ; the proper hour for administration is bedtime. The

dose is from 15 to 22 grains, which produce an effect in from ten to twenty minutes. The sleep lasts from six to seven hours, and is quiet and refreshing. This last is an important advantage, and is eagerly looked for by neurasthenics ; consequently in a few days a complete cure of the insomnia is effected. All are not equally benefitted, and it will probably be suitable for those who sleep easily but waken again on the slightest cause. Sulphonal is usually prescribed in a hot draught, when its effects are most marked. The same practice may be followed with trional ; solution is not always complete, but the particles floating on the surface of the liquid are only a small part of the dose. Its uses may be summed up as follows :—(a) Trional is preferable to its congener sulphonal in its prompter action and calm sleep with a natural awakening ; (b) the only dose is taken on going to bed, and if not successful when taken on two successive nights, it may be discontinued ; (c) it will only be used for a few days, consequently no intoxication with the drug need be feared ; (d) the degree of acidity of the urine must always be reduced ; destruction of blood only takes place when the urine is strongly acid, and is always met by alkalies ; (e) the constipation, occasionally following its use, must not be neglected, to avoid a dangerous accumulation owing to defective excretion. (The Practitioner, January, 1895, p. 87.)

TRAUMATIC GLYCOSURIA.

From the observations made in 212 cases of head injuries by Dr. F. A. Higgins and Dr. J. B. Ogden, in which glycosuria was present in 20 cases, they draw the following conclusions :—(1) That, after injury, sugar may appear in the urine as early as six hours, and disappear within twenty-four, the average time for its appearance, however, being from eight to twelve hours ; for the disappearance of the same, from the fifth to the ninth day. (2) That a small proportion of the cases may exhibit a permanent glycosuria from the date of injury to the head. (3) That acetone and diacetic acid are rarely if ever found in such cases, excepting where the condition becomes a permanent glycosuria, and even then probably only after a number of months or years. (4) That of the twenty sugar cases recorded, eleven (55 per cent.) had received an injury to the right side of the head ; five (25 per cent.) to the left side ; three (15 per cent.) to the occiput ; and two (10 per cent.) where there was no external evidences of violence. (5) That it is impossible in the present state of the knowledge of the pathology of diabetes and glycosuria to draw any inferences from the autopsies which have been obtained. (6) That there is little to be said in regard to the mortality. Of the twenty cases, eight died—six being the direct result of severe injuries, one from intercurrent disease,

and the third probably from alcoholism. In the 212 cases, 16 were fatal, 50 per cent. of these having glycosuria. (Boston Medical and Surgical Journal, February 28, 1895, p. 197.)

TREATMENT OF MILIARY TUBERCULOSIS WITH GUAIACOL.

The *Journal des praticiens* for January 12 publishes an article on this subject in which the writer says that since 1893 simple painting with guaiacol has been employed in cases of febrile tuberculosis. Bard, Lépine, and others have demonstrated by a series of observations that its antipyretic action does not improve the condition of consumptives with cavities, that it may perhaps ameliorate sclerosis, but that it produces better results in limited miliary tuberculosis of a doubtful diagnosis. These lasting curative results differ from the transitory antipyretic action obtained in ordinary tuberculosis. The writer relates the histories of four cases in which this treatment was employed, and the following conclusions from a physiological point of view, he says, may be drawn:—(1) The antipyretic effects of guaiacol are rapid and lasting in miliary tuberculosis. (2) The effects on nutrition are shown by the amelioration of the general condition of the local lesions. (3) Sometimes cutaneous erythema, hypothermia, and a tendency to collapse may be observed, which are due to the impurities in the guaiacol, and not to the medicament itself. Its positive indication is true tuberculous fever with the formation of new granulations; its contraindication is hectic fever. The method of administration consists in varying the dose from 8 to 30 grains at each application. Boscq prescribes the following mixture in order to produce the greatest tolerance: Equal parts of chemically pure guaiacol and sweet-almond oil. The backs of the hands are painted with this mixture and immediately covered with cotton, which is kept in place with a bandage. (New York Medical Journal, February 2, 1895, p. 160.)

TUBERCLE INFECTED HOUSES—The Disinfection of.

As is now well known, the tubercle bacillus will exist for indefinite periods of time in the dust of houses which have been inhabited by phthisical patients, in the nooks and crannies of wood. They are ready to attack future inhabitants of these rooms, and actually do so, especially children and young people. After relation to most exhaustive experiments with the view of discovering some means of disinfecting these houses, Messrs. Delapine and Ransome, of Manchester, came to the following conclusions upon this subject:—Putting aside the numerous experiments which have been made for the purpose of testing

(1) the virulence of the tuberculous products used in the experiments; (2) the influence of collateral factors (such as dryness, ventilation, heat, &c.), we may sum up the results obtained in the following way:—(1) The disinfection of rooms which have been contaminated with tuberculous products cannot be obtained by means of the fumigation methods such as are generally used at present. Sulphurous acid, chlorine, and euchlorine, as used under supervision by experienced municipal disinfectors, have proved practically useless. This only confirms the results obtained by Koch and his pupils in the case of a number of other organisms. (2) The only other method of disinfection which seemed to promise more satisfactory results was the direct application of a solution of chlorinated lime to the walls to be disinfected. This method has given so far satisfactory results, but is attended with discomfort on the part of those who have to carry out the disinfection. It must be remembered that the experiments of Schill and Fischer are unfavourable to the use of perchloride of mercury. (3) Light is, in the case of the tubercle bacillus, as it has been proved by several observers to be in the case of other organisms, the most important natural disinfecting agent. (British Medical Journal, February 16, 1895.)

[The question, therefore, does not appear to be solved. This being the case, we suggest that tubercle infected rooms and houses should be thoroughly painted inside—using rather liquid paint very freely. It should be allowed to penetrate into all the crevices of the wood of the floors and wainscoats. The tops and bottoms of the doors should not be omitted, and even the hinges thoroughly painted. The locks and latches should be removed and passed through the fire. The walls and ceilings should also be painted two or three coats after removal of the paper. It is also possible that some mercurial preparation can be mixed with the paint so used, without injuring it, so as not only to envelope and bury every tubercle bacillus but also when buried to destroy it.—*Ed.*]

AFFECTIONS OF THE NERVOUS SYSTEM.

ACUTE ANTERIOR POLIOMYELITIS.

Von Kahlden (*Centrabl. f. allg. Pathologie*, September 14, 1894) reviews recent writings on the morbid anatomy of this disease, with special reference to its parenchymatous or interstitial origin. In three of Rissler's cases death occurred from six to eight days after the onset. Here there was advanced degeneration of ganglion cells, but very little change in the interstitial tissue. Rissler concludes that Charcot's view that the primary

lesion is in the ganglion cells is the correct one. Two other cases in which death occurred after seven weeks and eight years respectively are reported by the same writer. From his own three cases, all of some years' standing, the author also adopts Charcot's view, as neither the destruction of ganglion cells in groups nor yet the relatively very slight disappearance of nerve fibres was to be explained by a primary interstitial lesion. In two cases of old amputation the author also saw this atrophy of ganglion cells in groups. He records an investigation into two further cases of what he terms "atypical poliomyelitis." Goldscheider concludes from his case that some irritant having established itself in the vessel wall led to marked vascular dilatation and endothelial overgrowth, which spread to the neuroglia. The author points out that Goldscheider here uses the term "inflammation" in quite a new sense. Dauber, from an examination of a case of five days' standing, maintains the interstitial origin of the disease. The author would class this case, as well as Redlich's, as atypical. Siemerling maintains that in his two cases of ten days and eight months' standing the disease was an acute myelitis, the anterior horns being chiefly involved. The interstitial change along with the vascular lesions showed, according to this writer, that the supporting tissue was the chief seat of the disease. The author thinks that the value of quite recent cases has been overestimated in settling this question. It is then often open to doubt whether the disease is really poliomyelitis, or they may be atypical cases. Slighter cases should be used to determine the starting point of the disease. The author attaches overwhelming importance to the disappearance of ganglion cells in groups. He maintains that any lesion affecting these cells secondarily through their blood supply must be diffuse. There is no evidence why a non-corpuscular irritant circulating in the blood should involve not only the spinal cord alone, but so small a part of it as the anterior horns. The rapid onset of the disease is not explained by a secondary affection of the ganglion cells. The author refers to the intact condition of many nerve fibrils in this relation. He maintains that in his own and other reported cases the changes in the interstitial tissue do not need the assumption of an interstitial origin for anterior poliomyelitis. (*Epitome of the British Medical Journal*, October 20, 1894, p. 61.)

Acute Anterior Poliomyelitis.—Epidemic.

In a discussion on this subject at a meeting of the New York Neurological Society, on November 6, 1894, Dr. Starr stated that at Vermont last summer he had seen a number of the cases of anterior poliomyelitis. Within a radius of perhaps twenty-five miles about 160 cases of the disease had occurred between the

25th of July and the 1st of September. The epidemic had first been regarded as one of cerebro-spinal meningitis, but, from the lack of sensory symptoms and from the peculiar distribution of the motor symptoms, Dr. Starr said he regarded them as true cases of anterior poliomyelitis. Sensory symptoms had been present in some of the cases, but he had often found in anterior poliomyelitis, in patients over the age of twelve years, that hyperæsthesia and stiffness of the muscles were among the first symptoms complained of. He called attention to the fact that in the classical descriptions of anterior poliomyelitis so little mention was made of the pain and stiffness and hyperæsthesia. The reason for this probably was that so few cases of the disease were diagnosticated as such until they had gone on for a week or two, and by that time the sensory symptoms had practically disappeared. (New York Medical Journal, December 29, 1894, p. 824.)

ACUTE IDIOPATHIC CEREBRO-SPINAL MENINGITIS.—Report on Ten Fatal Cases.

Acute cerebro-spinal meningitis, for which no obvious cause can be found, is not on the whole a common disease. Ten fatal instances of it occurred at St. Bartholomew's Hospital during the six years that I was medical registrar there (1887-1893). All cases are excluded wherein any recognised cause could be found, such as tubercle, injury, otitis, disease of the skull-bones, pyæmia, ulcerative endocarditis, pneumonia, erysipelas, &c., and also those in which only the cerebral membranes were affected or in which post-mortem the examination of the cord was omitted. In addition to the ten fatal cases there were three cases during the same period which recovered. Unfortunately, I can give no sufficient account of the bacteriology of these ten cases, which to many may seem their chief point of interest; but in a subsequent case occurring since my term of office, Dr. Kanthack demonstrated the presence of the pneumococcus; and Dr. Herringham notes that this organism has been found in two other recent cases. This, I believe, is in accordance with the majority of bacteriological observations on the subject. Nor have I anything to say as to their etiology generally, save that one case developed meningitis in the course of some acute throat affection, and four out of the ten occurred between March and June, 1890. This is an unusual number for such a short time, and the fact suggests the possibility of some epidemic influence. As a matter of fact, an epidemic of meningitis did occur in the summer of that same year in the Eastern Counties. It is, indeed, possible that idiopathic meningitis does not differ essentially from the epidemic disease. [Full notes on ten cases were then given.] The commonest

features of the disease were :—Fever of sudden onset and without obvious cause, headache, vomiting, restlessness, and even delirium, and soon afterwards strabismus and retraction of the head, and, finally, death, which was often preceded by irregularity of respiration or by coma, within a week. But some cases lasted longer, *e.g.*, one for twelve days and two between three and four weeks. In both of these latter hydrocephalus was found post-mortem. Further, three, or perhaps four, cases (not included in these ten) recovered. A clinical relation to other diseases only appears twice. In one case the patient had whooping-cough, and had been exposed to measles; and in another case the meningeal symptoms developed during an attack of acute faucial and laryngeal mischief, both diseases being possibly the result of some one unrecognised infection. Only one or two remarks need be made about the post-mortem examination results. Pneumonia was never found; pleurisy (in one case with pulmonary infarcts) twice only; the spleen was enlarged only in two instances, and in these the enlargement may have depended on other causes than the fever. As to the meningitis itself, the purulent character and the distribution of the cerebral exudation sufficed to distinguish it from tuberculous meningitis; the spinal exudation, though sometimes enveloping the whole cord, usually affected the posterior surface chiefly, and the dorsal and lumbar regions rather than the cervical. Hence, to exclude a spinal meningitis it is not enough to look around the foramen magnum, or even at the cervical region of the cord, but the whole length of it must be examined. (Dr. J. A. Ormerod, *The Lancet*, March 23, 1895, p. 735.)

AFFECTIONS OF THE NERVOUS SYSTEM OCCURRING IN THE EARLY (SECONDARY) STAGES OF SYPHILIS.

Mr. Jonathan Hutchinson, in opening a discussion on the above subject before the Royal Medical and Chirurgical Society, on February 26, 1895, said that the term "early" was designed to comprise the first two years. Attention was asked to the following topics :—(1) The general differences between affections of the nervous system in late and in early stages of syphilis. (2) The state of general diminution of sensation which has been alleged (Fournier) to attend the exanthem stage of syphilis. (3) Certain rare cases of general paresis of both motion and sensation which are met with in secondary syphilis, and from which complete recovery may take place. (4) The early occurrence of arterial disease which may influence the nervous system secondarily, (*a*) in reference to the brain, (*b*) in reference to the spinal cord. (5) A group of not very infrequent cases, in which a rapidly developed form of paraplegia occurs

early in syphilis, and from which, although it may be for a time almost complete, partial recovery usually takes place. (6) The occasional occurrence of paralysis of single nerves (unsymmetrically). (7) The influence of syphilis in producing recurring herpes. (8) The parallelism between certain affections of the brain and spinal cord in secondary syphilis with acute inflammation of the eye and ear occurring in the same stage. (9) The parallelism between these syphilitic affections of the nervous system and those of somewhat similar character which have been observed after the acute exanthemata. The facts which have been brought forward seemed to him to justify the following conclusions which he offered as the basis for discussion:— (1) The nervous system may suffer in very various ways during the secondary period of syphilis, and it is very important to recognise this fact, since the affections are usually acute and destructive unless prompt treatment be adopted. (2) It is very exceptional that any disease of the nervous system occurs earlier than the sixth month. (3) Many, perhaps most, of the affections of the nervous system in the secondary period are secondary to disease of the blood vessels. Under this head we may be permitted to include extensive implications of the minute arteries of the pia mater, whether of the brain or cord. (4) Amongst the diseases which are probably primarily of the nerve structures themselves we may recognise (1) acute affections of the eye and ear, of the latter sometimes attended by paralysis of the portio dura; (2) acute forms of polyneuritis, usually symmetrical and transitory; (3) a peculiar and very definite form of paraplegia due to transverse myelitis; (4) certain rare and peculiar forms of hemianæsthesia. (5) It is not disputed that at much later periods in the course of syphilis affections closely similar to the above may occur, but it is believed that when they do so they are much slower in onset, less severe and more chronic in progress, and less amenable to specific treatment. (6) The prognosis of these affections is good up to a certain point if efficient treatment be commenced early. (7) It is believed that these early affections of the nervous system in syphilis occur almost invariably to those in whom the treatment in the early stages of the disease has been more or less neglected. (*British Medical Journal*, March 2, 1895, p. 476.)

Dr. Gowers, in the course of the discussion on the above subject, said that as regarded the effect upon the nervous system he knew nothing practically of the distinction between secondary and tertiary syphilis. Syphilis affected the nervous system in various ways. First, there was the effect of syphilis upon the arteries. This was, as far as we could be sure, confined to the cerebral arteries, and, except for one or two cases,

to the larger cerebral arteries. It might occur at any time between the first year and the twenty-fifth year after the chancre, though usually before the seventh or eighth year, and whenever it occurred it was exactly the same in appearance. Secondly, there were gummata. These were found at about the same period of the syphilis as the arterial lesions, but were probably much less common. They always arose from the meninges, and might be traced to the cerebral meninges, even when they seemed to be situated within the brain substance. These included the small gummatous growths upon the cranial nerves. In order to obtain a real grasp of syphilis, he must regard it as an organismal disease, and, arguing on the analogy of the diphtheritic organism, whose effects had been so ably worked out by Sidney Martin, he was inclined to think that tabes was due, like diphtheritic paralysis, which sometimes closely resembled it, to some chemical result of the syphilitic organism. But other lesions did occur in syphilitic subjects which might be due to syphilis. One such was simple acute meningitis, another was transverse myelitis. These, as he had said, might be due to syphilis, but we did not know it for certain. Nor could cure under mercury be used as a proof of their specific nature. It was certain that syphilis had two effects, the one inflammation, the other the production of a peculiar tissue, the gummatous. These two varied in amount, some lesions being almost wholly gummatous, others very largely inflammatory. He saw no reason why some again should not be wholly inflammatory; the inflammatory part of the process in each case was indistinguishable from ordinary simple inflammation. Now, there was no question that ordinary simple inflammation was greatly influenced by mercury, and, therefore, to argue from the effect of mercury that any given inflammation was syphilitic was unjustifiable. He had found it impossible to draw a distinction between cases of transverse myelitis, probably syphilitic, and similar cases in which syphilis could with certainty be excluded; yet, though he had no certain knowledge, he thought it probable that syphilis did cause such cases. How it acted he did not know. So far as his knowledge went there was no proof, but he had mentioned fifteen years ago the suspicion that it might be through disease of the spinal arteries. He was not of opinion that by the effect of mercury we could draw a distinction between secondary and tertiary syphilis. One case of syphilitic cellulitis in the tissues of the neck which had occurred fifteen years after infection, and which might therefore be reckoned tertiary though unaffected by iodide of potassium, had yielded rapidly to mercury. In many cases iodide of potassium produced great effect for a time, but after two or three months' continuous use.

it ceased to prevent the fresh development of the syphilitic processes that it first arrested. (British Medical Journal, March 2, 1895, p. 477.)

ANOREXIA NERVOSA—Fatal Case.

The following interesting case is recorded by Mr. Lockhart Stephens:—A girl 16 years of age was admitted to the Emsworth Cottage Hospital on March 10, 1888, on account of extreme emaciation. On admission the patient was a tall intelligent girl of fair complexion and hair, with a somewhat sad expression, resembling strongly (as in Dr. Stephen Mackenzie's case) the diabetic face. She was rather affected in her manner and at times almost childish in her conversation. Her limbs and body, if properly nourished, would have been well developed; the breasts alone took no share in the extreme wasting, but stood out in marked contrast. She weighed 56 lb. Repeated and careful examinations failed to detect any signs of disease in the thoracic or abdominal organs. The bowels acted every other day. The urine, sp. gr. 1018, was acid, without a trace of albumen, sugar, or other abnormal constituent. The teeth were good, the tongue was clean and red, the abdomen markedly retracted (there was no pain on manipulation), and the lips were fissured from a habit of constantly licking them with her tongue. Though there was no marked aversion to any particular kind of food she preferred sweets and dainties, but would not take more than a most minute portion at any time. Up to ten months previously to admission the patient had been a remarkably well-made, plump, and healthy-looking girl, full of spirits and eager to attract the notice of her friends, which she did to a considerable degree, becoming a favourite with her teachers and others. Gradually, and from no apparent cause, she showed a disinclination to take the same food and at the ordinary meal times as the rest of the family. This went on until she reached the very emaciated state in which she was on admission; but even then she persistently maintained that she was quite well and resented being placed under treatment. She was able to help her mother in her household duties, but preferred taking long walks when she had the opportunity, apparently without feeling fatigued even after walking long distances. Her father and mother were living and healthy, though the latter was very excitable and quite under the influence of the patient, who was the only girl out of six children and the spoilt child of the family. My first impression, before examining the urine, was that I had to deal with a case of diabetes, yet of this I was very doubtful, never having seen in diabetes, or in any other disease associated with wasting, so much physical strength in such an ill-nourished body. As the

girl was under no control whatever at home I advised her parents to allow her to come into the Cottage Hospital on the distinct understanding and promise that whatever treatment was thought necessary should be carried out. She was ordered to be kept in bed with her limbs and body bandaged in cotton wool, to be fed every four hours with peptonised food, and to do nothing in the way of exertion. At first no difficulty was experienced in managing her, but after a few days she resented all treatment, became sullen and fretful, crying out for her mother, who lived only a few doors from the hospital, the result of which was that her mother, in spite of advice to the contrary, persisted in seeing her every day. From this time she began to lose the little ground we had gained; she took very small quantities of food, and resorted to every conceivable trick to avoid swallowing it, although she would take it into her mouth. On April 1, she was able to get out of bed and walk round the room without difficulty. On the 2nd (6 a.m.) the nurse noticed that she was much weaker, and could only with difficulty swallow some egg-and-milk. At 8 a.m. she was rather brighter, but at 8.45 a.m. she became suddenly collapsed. The body weighed 49 lb.; the height was 5 ft. 4 in. The circumference of the arm high up at the shoulder was $4\frac{3}{4}$ in.; circumference of the wrist, $4\frac{1}{4}$ in.; circumference of the waist, 17 in.; circumference of thigh just below the great trochanter, 8 in.; circumference of the neck, $8\frac{1}{2}$ in. The body was extremely emaciated; there was not a trace of fat in the subcutaneous tissue with the exception of the breasts, which stood out boldly. On opening the abdomen there were visible: the lower edge and anterior surface of the right lobe of the liver, measuring three inches and a half vertically; the anterior surface of the stomach for two-thirds of its extent, starting from the pyloric end, which was below the level of the umbilicus, so that the long axis of the organ was directed almost vertically downwards; three inches of transverse colon just above the pubes, in the great omentum. The bones of the head were thin, the membranes and vessels were normal, and the brain was normal throughout; it weighed $45\frac{1}{2}$ oz. The right lung weighed 19 oz. (it was much congested from hypostasis). The left lung weighed $11\frac{1}{2}$ oz.; it was less congested than the right. Both lungs were otherwise normal. The left pleural sac contained about $\frac{1}{2}$ oz. of clear serum. The heart weighed 4 oz.; its external appearance was normal. Both auricles contained small decolourised clot. The left ventricle was firmly contracted; the right was thin and flaccid; the valves were healthy. The liver weighed $23\frac{1}{2}$ oz.; it was normal in appearance. The gall-bladder contained one drachm of clear, thin bile. The pancreas (weight $1\frac{1}{2}$ oz.), spleen (weight $1\frac{1}{4}$ oz.), adrenals (weight of each

$\frac{1}{4}$ oz.), and kidneys (weight of right 3 oz., of left $2\frac{1}{2}$ oz.) were all normal. The uterus and ovaries together weighed $\frac{7}{8}$ oz. (The Lancet, January 15, 1895, p. 31.)

Anorexia Nervosa.—Fatal Case of.

A girl, said to be 11 years of age, but who looked nearly 14 years old, was admitted to the North Eastern Children's Hospital on May 10, 1890. The history was only of one week's loss of flesh, anorexia, and vomiting. Four years previously she was said to have had similar attacks. On examination she was found to be extremely emaciated, but there were no signs of organic disease. She had a wild, hysterical appearance, was very restless, and refused all food; her bodily strength, however, was greater than would be supposed from her extreme emaciation. (The abdomen was so sunken that the vertebral column and sacrum could be easily felt.) As she refused all food she was fed on enemata of peptonised milk, beef tea, and brandy. In two or three days peptonised milk and beef tea were taken by the mouth in small and frequent doses. In ten days she could take a moderate diet by the mouth, but suffered from diarrhoea. On the thirteenth day after admission she rapidly became worse, the temperature rose to 102° F., and on the fifteenth day she died. At the necropsy some old caseous foci were found at the base of the left lung; the stomach was congested with scattered ecchymoses; the other organs were normal. The case was diagnosed as probably one of anorexia nervosa, but in spite of the great emaciation no fatal issues were apprehended till two days before death. This diagnosis was, in the absence of any lesion to account for death and in the absence of diabetes, supported by the post-mortem examination. The presence of the old tuberculous foci in the lungs is of interest, in that this disease was supposed to originate from latent tuberculosis; but in the above case the tubercle was too small in extent and too localised to have been a factor in the cause of death, which was presumably due to the inanition having proceeded too far for recovery before systematic and regular treatment was begun. Dr. Laségue, writing in 1873, states that death in such cases is never due primarily to the anorexia, but to some secondary disease such as tubercle occurring while the patient is in a lowered condition. Sir William Gull records a fatal case with no organic changes except thrombosis of the femoral veins.—C. F. Marshall, Esq., M.D., F.R.C.S. (The Lancet, Jan. 19, 1895, p. 149.)

BILATERAL FACIAL PALSY AS A SEQUENCE OF INFLUENZA.

Mr. W. J. Barkas (Sydney) relates the following rare case:—The patient, a medical man, thirty-six years of age, married, resides

in a district nearly one hundred miles from Sydney, which is bitterly cold and bleak in winter. There is no personal history of syphilis, alcoholism, or any other diathesis, and he has always enjoyed good health. His brother had an attack of right Bell's paralysis after having been ill with influenza, as also his father twenty years ago. As the patient did not come under my observation until four days after the seizure I shall append his personal statement concerning that period: "The attack of influenza commenced about the end of June with slight pyrexia during two or three nights (nearly 100° F.), but normal in the morning, and there was no further pyrexia afterwards. There were rapid pulse, persistent pains in the head and back, and also all over the body occasionally, and total loss of appetite. All of these symptoms subsided very slowly, leaving great debility, anorexia, and heart rapidity for about four weeks. At the end of that time the appetite increased, and the night sweats during sleep, which had been very troublesome all through, began to disappear, the influenza not being sufficiently bad during this time to prevent me seeing my out-door patients. At the end of July we had some extremely severe weather, with snow and persistent gales with sleet, and the driving against these winds caused considerable discomfort to my face. On the morning of July 26 I noticed on waking stiffness and swelling of the left side of the face, and on attempting to shave found I had no power over the labial muscles. I could still whistle, and the closure of the eyelids was not complete. On the following morning I found complete facial paralysis on both sides, the face felt stiff, and the lips hung down, the face generally being flaccid and the forehead smooth; the nerves of sensation were not affected at any time; all voluntary movements of the eyelids, lips, nostrils, cheeks, and forehead were impossible; the nostrils had fallen in; the eyes were open and exposed to dust or water when washing; eating was difficult and very slow, as the food got between the gums and the cheeks, and liquids nearly always escaped from the sides of the mouth. I thought there was an absence of taste two days before the paralysis appeared, but I am doubtful whether this was not due to the condition of the surface of the tongue, and about the same time I noticed some difficulty at the maxillary joints in mastication. There was a total absence of pain about the head or ears at any time, except what seemed like rheumatism of the muscles at the back of the head, but which was neither persistent nor severe." On the 30th he came to Sydney, when I first saw the patient. His symptoms then were similar to those mentioned in his statement, but there had been some slight improvement, as he could now lower the eyelids sufficiently to cover half the eyeball; he could also faintly twitch the lips and cheeks, and by pressing his fingers on the

upper and lower lips he could speak fairly well, pronouncing even some of the labial sounds, but without that pressure he could not enunciate any words having b, f, p, m, v, u, w, y in their formation, nor could he whistle; there were no apparent movements of the facial muscles even under emotional influences, so that when one would expect to see the face wrinkle with smiles or laughter it remained an immovable mask. There was complete sensation everywhere. On firm pressure over each nerve at its exit from the foramen there was slight tenderness. Otherwise he was apparently well; he slept fairly, the appetite was good, and the tongue clean, but the bowels were rather sluggish. The heart's action, however, still remained somewhat rapid, averaging 96; but there were no marked symptoms of any cardiac lesion or any rise of temperature. He had been taking a mixture of salicylate of soda, strychnine, and digitalis. This I stopped, and ordered the following: five grains of iodide of sodium, ten grains of bromide of sodium, five minims of tincture of digitalis, fifteen minims of syrup of orange peel, to half an ounce of water—every four hours; also a smart purge and blisters behind each ear every other day. In four days there was very rapid progress towards recovery, but more so on the left side than on the right, and I then ordered the following: twenty minims of dilute hydrobromic acid, half a grain of sulphate of quinia, ten minims of tincture of strophanthus, infusion of orange peel to one ounce—every four hours; and blister on right side only. On July 11 (seventeen days after seizure) the left side of the face had almost completely recovered, and consequently the face had not now the expressionless appearance of double palsy, but resembled that of unilateral or Bell's paralysis. He could whistle fairly well, and talk without compressing the lips with his fingers. On August 19 the right side of the face seemed to be improving, but slowly. I used a weak galvanic current, but only for a minute or two, as the right facial nerve became very tender and painful. The muscles did not respond to the current on the right side. On the 26th (thirty-one days after the attack) the patient was progressing favourably; the face when at rest appeared in a normal condition, except that the right eye was rather more staring than the left. When talking or smiling the muscles showed deficiency of action, and produced the appearance of slight right Bell's paralysis; otherwise he was well and able to go out, having the ears and adjacent parts of the face covered by thick pads. The rapid heart action still continued, but did not cause any marked disturbance. From this time he continued to progress very well. On September 6 the action of the muscles on the right side was not quite perfect, but unless special attention was drawn to the fact the loss of motion would not be noticed. (*The Lancet*, January 26, 1895, p. 217.)

CROSSED KNEE-JERK.

This was the title of a paper read conjointly by Dr. Guy Hinsdale and Dr. J. Madison Taylor before the American Neurological Association on May 30, 1894. It was based on studies of over a thousand cases of nervous diseases. In using the term crossed knee-jerk, it was meant that the patella tendon being struck, the opposite leg was instantly made to approach its fellow; hence the phrase "in-knee-jerk" or "contralateral knee-jerk" might be used to describe this action. The movement observed in the limb opposite to that in which the patella tendon was struck was not an extension of the leg so much as an abduction of the thigh (*vastus internus* and *cruræus*). The best attitude for eliciting the movement was sitting in a chair with the body erect and the knees 10 or 12 inches apart, and the knee-joint at rather an obtuse angle, the feet being advanced a few inches. The phenomenon was observed in a small proportion of normal persons, and in from 20 to 30 per cent. of the patients coming to a clinic for nervous diseases. It was distinctly proved not to have been due to a communicated shock or jar to the pelvis by reason of its absence in all cases of locomotor ataxia, and its production in favourable cases on suspending the subject from the floor and observing the adduction of the thigh on tapping the patella tendon or, as in one case observed, tapping the tendo Achillis. Crossed knee-jerk was also found to be re-enforcible. Re-enforcement produced the movement in some cases where it was not otherwise evident. (New York Medical Journal, January 5, 1895, p. 22.)

HYSTERICAL CONTRACTURE OF THE LEGS OF TWO YEARS' STANDING COMPLETELY CURED IN A FEW WEEKS BY ORDINARY METHODS OF TREATMENT.

Before the Clinical Society of London on March 1, 1895, Dr. Hector Mackenzie detailed the notes of a case of hysterical contracture of the legs. The patient, a young woman, had first come under his care at the age of 20 for symptoms which suggested gastric ulcer. She was at that time much emaciated, and suffered from gastric pain and vomiting. Some time after this she had some disappointment, lost power in her legs, and took to her bed; the legs soon became contracted, and remained so. When she came under treatment a second time the legs had been contracted for two years. She was now 23 years of age. Her emaciation was great; her weight was five stones. Under the deepest anæsthesia it was impossible to extend the legs on the thighs beyond a right angle; flexion could, however, be performed up to the normal limits. The flexor tendons were

hard and rigid. The patient was depressed, and dwelt much on her troubles. There was marked anorexia. From the history, the mental and physical condition, and the character of the contracture, Dr. Mackenzie concluded that the case was hysterical in origin. It seemed likely, however, that structural changes in the flexor muscles had supervened, and it was at first doubtful whether it would be possible to straighten the legs without performing tenotomy. It was considered that the first thing to be done was to improve the general nutrition and to cure the morbid mental condition. The case was treated in the general ward of the hospital with massage and high feeding. Letters and the visits of friends were strictly forbidden. At the end of five weeks the patient had gained a stone in weight and was much more cheerful. She was soon made to get up and was encouraged to use her legs a little. The contracture gradually but surely gave way. At the end of nine weeks the legs were nearly straight, and the patient had gained two stones in weight. She was discharged at the end of thirteen weeks well able to walk with her legs quite straight, her weight nearly three stones more than when she came in, and in a cheerful frame of mind. She had now for two years been perfectly well. It was very satisfactory to know that in such a well-marked and long-standing case ordinary methods of treatment had proved sufficient to establish a complete cure. (*The Lancet*, March 9, 1895, p. 618.)

INGRAVESCENT CEREBRAL HEMORRHAGE TREATED BY LIGATURE OF THE COMMON CAROTID ARTERY.

Dr. F. X. Dercum reports the case of a gentleman, aged 50, who first experienced slight weakness in the left arm on February 11 at 8 a.m., and of the left leg the same evening. In spite of treatment the symptoms were more marked the next morning. All that day he remained about the same; but the following morning there was a decided increase in the paralysis, which continued to progress till the evening of the next day, February 14. By this time there was complete paralysis of the left arm, very decided paralysis of the leg, and paralysis of the lower half of the left side of the face. There was no paralysis of sensation. There was a dull feeling in the head and slight giddiness, but no mental disturbance whatever. The arteries were somewhat atheromatous; urine of sp. gr. 1018, no albumen. A diagnosis of *ingravescent cerebral hemorrhage* was made, and ligature of the right common carotid artery recommended. The patient having freely given his consent, the operation was performed by Dr. W. W. Keen at 11 o'clock the same evening, cocaine being used locally in place of

a general anæsthetic. The patient bore the operation well. Next morning it was evident that the progress of the paralysis had been stayed, and his condition was much the same as before the operation. On the following day a very decided return of motor power was noticed in the affected limbs, and from this time he steadily continued to improve. When seen two months later there was a very slightly spastic condition of the limbs on the left side, and the deep reflexes were somewhat increased, but the patient had a good deal of power on this side. Dr. Dercum considers that the symptoms pointed to a progressive capsular hemorrhage.—*Journ. Nerv. and Mental Dis.* vol. xxi. No. 9, p. 586, September, 1894. (The Practitioner, November, 1894, p. 362.)

INSULAR SCLEROSIS.—Transitory Palsies in.

Dr. Buzzard, after detailing five interesting cases of disseminated sclerosis, made the following very interesting observations:—Looking back I can remember a number of cases in which recovery from more or less powerlessness for a time, to be followed by a return of trouble in the same or another limb, led me into temporary error of diagnosis, until the sequel, by displaying typical symptoms of insular sclerosis, cleared up the obscurity. When the remissions occurred in young females I used to fancy that the term “hysteria” could be satisfactorily applied to the case, whilst, if the patient belonged to the other sex, not a little suspicion of malingering would sometimes cross my mind. Subsequent experience, extending over many years, has pretty well convinced me that the view still widely held that a shifting of loss of power from one limb to another is characteristic of hysteria is an error which has arisen from cases of insular sclerosis being diagnosed as hysteria. I do not think that there is any other disease of the spinal cord in which this feature is to be found, at least in the special circumstances by which it is marked in these cases. I am not forgetting that recurrence of symptoms, either in the same or another part, is very frequent indeed in syphilitic disease of the nervous system, and that in such instances there may be a more or less prolonged interval of exemption. It is necessary, of course, to bear this in mind, and in some cases there may be a certain amount of difficulty in the diagnosis. In very many instances of insular sclerosis (occurring, as the disease so frequently does, in young females of good social position) syphilis can be easily excluded, that in the latter disease more or less complete paralysis rather than paresis is the rule, and that the effects of the remedies afford very great help, the power returning in insular sclerosis independently of any active treatment, whilst in syphilis the paralysis tends to become more and more confirmed until specific

remedies are employed, when it usually begins very shortly to show marked amelioration. I am disposed to think the condition of vision likely to afford much help in the diagnosis. Last year I adduced evidence to show that some degree of optic atrophy was present in the course of 43 out of a collection of 100 cases of insular (disseminated) sclerosis, and it was remarked besides that even when the discs presented no change some transitory amblyopia was to be found in a considerable number of cases of the disease. Out of five patients, no less than four are affected with amblyopia and present more or less pallor in one or both discs. It is specially to be noted that the amblyopia is very liable to remissions and recurrences in this disease, exactly recalling the peculiar feature already alluded to in reference to loss of power in the limbs. It would not be right to speak very positively on these points pending the opportunity of still more extensive observation; but I am certainly disposed to believe that the occurrence of paresis in one or more limbs, with spontaneous recovery, and recurrence of symptoms in the same or another part, together with amblyopia, accompanied or not by pallor of one or both discs, constitute a symptom-group which should hold a place in the diagnosis of insular sclerosis not second to that at present occupied by tremor or voluntary movement and scanning articulation. (*The Lancet*, January 12, 1895, p. 77.)

LEPROSY OF THE ULNAR NERVE.

At a meeting of the Liverpool Medical Institution on January 31, 1895, Mr. Banks showed a young seaman on whom he had operated five years previously for leprosy in the ulnar nerve. The man was of dark complexion, his mother being partly of Indian blood. He had complained of great loss of power in the right arm. There was a long cylindrical swelling occupying many inches of the ulnar nerve; there was loss of sensation over the area supplied by the ulnar nerve. The nerve was exposed and very carefully split longitudinally, and a long core, looking like old blood clot, was removed. On microscopical examination this substance was found to contain the bacilli of leprosy. The man regained power in the arm and the feeling returned, so that at present he could use one arm as well as the other. (*British Medical Journal*, February 9, 1895, p. 309.)

LOCOMOTOR ATAXIA.—Early Signs.

Professor Fournier classifies the early symptoms of locomotor ataxy as follows:—(1) Sign of Westphal; (2) sign of Romberg; (3) the “stairs” sign; (4) crossing of the legs; (5) walking at the word of command; (6) standing on one leg. (1) Westphal’s

sign is well known ; it consists in the abolition of the patellar tendon reflex, and is present in two-thirds of the cases. (2) Romberg's sign can be thus appreciated :—The eye is an indirect regulator of motion ; it helps to correct deviations in walking and maintains the equilibrium. When a patient is suspected of incipient ataxy, it will often suffice to make him close his eyes when in the erect position to verify the diagnosis. In a few instances his body will oscillate, and if the malady is somewhat advanced he will be in danger of falling. (3) The "stairs" symptom. One of the first and most constant symptoms of incipient locomotor ataxy is the difficulty with which the patient will descend stairs. If questioned closely on the subject he will say that at the very outset of his malady he was always afraid of falling when coming down stairs. (4) The manner in which a patient crosses his legs is often significant. In the normal state a man when performing that act lifts one leg simply to the height necessary to pass it over the other, whereas in the affection under consideration he lifts it much higher than necessary, describing a large segment of a circle. (5) Walking at the word of command. The patient seated is told to get up and walk instantly. After rising he will hesitate, as if he wanted to find his equilibrium before starting off. If while in motion he is told to stop short, his body, obeying the impulsion, inclines forward as if about to salute, or, on the contrary, he jerks himself backward in order to resist the impulsion forward. (6) The patient is asked to stand on one leg, at first with his eyes open, afterwards closed. Although man is not made for this position, yet he can balance himself pretty firmly for a little while. The ataxic will experience a great deal of difficulty, and will instinctively call to his aid his other foot so as not to fall. If his eyes are closed he will not be able to stand one instant, and if not held he would fall heavily to the ground. Such are the symptoms of incipient locomotor ataxy. They will not be all present frequently, but they should be all sought for in order to avoid an error which might have grave consequences. (New York Medical Journal, March 16, 1895, p. 351.)

MIGRAINE.

Claus (*La Flandre Méd.*, Nos. 7, 10, 16, 1894) distinguishes three forms of this disease, which he calls simple, ophthalmic, and ophthalmoplegic. The first includes those cases in which there are headache (hemicrania), nausea, vomiting, and various other disturbances, more or less severe, which go to make up the familiar picture of "sick" or "bilious" headache. The ophthalmic form is characterised by scintillating scotomata, and may follow on or alternate with the first; it may be accompanied

by hemianopsia, sensory and motor disturbance. While admitting a possible relationship, the author does not believe in Féré's view that this form of migraine is a species of epilepsy. The ophthalmoplegic form is marked by intense headache, much more hemicranial in character than in the other cases, and which terminates "as by enchantment" with the appearance of paralysis of the third nerve in a marked degree, and occurring on the same side as the pain. The writer discusses fairly fully the various theories as to causation, and strongly supports the opinion that migraine is due to auto-intoxication. He also lays stress on chlorosis as a strongly predisposing cause. For treatment he recommends, first, as prophylactic, the avoidance of fatigue, hunger, mental strain, chill, constipation, &c.; advising rest after meals, and a carefully selected diet. Cases are quoted where a complete change of employment appeared to remove the tendency, and reference is made to the importance of correcting errors of refraction. In the way of drugs, stress is laid on such as meet a constitutional condition as gout, and iron is strongly recommended for reasons given above. For actual attacks, caffeine, antipyrin, and phenacetin are given the first place; a large dose of antipyrin as soon as possible is advised, combined, it may be, with 8 to 15 minims of tr. digitalis. Claus considers "migrainin" and other recent drugs as too uncertain. As may be expected, salicylates are often of great benefit. Bromides are indicated in the second and third forms. Cold douching is said to be of importance. (*Epitome of the British Medical Journal*, November 4, 1894, p. 81.)

NEURASTHENIA.—Depression of Spirits bordering on Insanity.

It is no use sending these patients away for change of air and scene. It does not cure. They take with them their religious or other form of melancholia, and the effort to "cheer up" is too great, and ends sometimes in rapid deterioration. There is too much "nerve tension" and this wants relaxing by rest, warmth, and feeding. Rest of both body and brain. Put the patient to bed in a darkened room for no less a period than three months. Feed her well, at first with liquid nourishment, and afterwards as the digestive powers increase with animal and other solid food. Talk to her about her "lost soul" or other peculiar delusion. Let her think it out in seclusion. The patient will soon begin to recover. (*Dr. F. Orton, Edinburgh Medical Journal*, February, 1895, p. 689.)

OPTIC NEURITIS IN BRAIN TUMOUR.

Dr. William H. Wilder discusses the relative value of optic neuritis in brain tumour in a study of 161 cases in which either

an operation or an autopsy had been performed. He considers briefly the nature and pathology of optic neuritis, states the various theories of Graefe, Schmidt and Manz, Hughlings Jackson, Leber, Edmunds and Lawford, and indicates where these hypotheses are found wanting. He also discusses the value of optic neuritis as a diagnostic sign in cases of brain tumour, its worth as a means of localisation, and its significance with reference to the nature of the tumour. Of the 161 cases investigated, 90 comprise growths of the type of glioma and sarcoma, with their mixed forms. Optic neuritis was found in 74·3 per cent. of the cases which were examined with reference to this sign. Out of 104 cases with choked disc, 37 showed involvement of the cerebellum, whilst in 25 the motor convolutions were the seat of the neoplasm; 90 per cent. of the cerebellar tumours were accompanied by optic neuritis. The author remarks the infrequency of one-sided choked disc. In some cases the neuritis was more pronounced on one side than on the other, and this, in the large majority of the cases, on the side corresponding to the new growth. W. is inclined to believe that the cause of neuritis of the optic nerve must be sought in the irritation of the nervous elements by the products of tissue change in the growth, causing a descending inflammation, or that they cause a direct irritation of the nerve, through the medium of the fluids of the optic sheath. Wilder lays stress on periodical attacks of blindness as a clue to a possible intracranial growth. (*Journal of Nervous and Mental Diseases*, February 1895, p. 127.)

PRURITUS TREATED BY ANTIPYRIN.

F. Arnstein (*Gazeta Lekarska*, No. 48, 1894, p. 1298), following Blaschko's recommendation (*Berlin klin. Wochenschr.*, No. 22, 1891), has tried antipyrin internally (in powder, 1 gramme at bed-time) in two severe cases, one of which was that of a woman, aged 28, with pruritus nervosus of three months' standing, while the other referred to a woman, aged 66, with inveterate pruritus senilis. In both the itching quickly subsided, to disappear altogether in a couple of weeks. Both of the patients had been previously treated by various physicians and after various ordinary methods without obtaining any relief whatever. (*Epitome of the British Medical Journal*, February 23, 1895, p. 32.)

SPINAL SYPHILIS.

Scalfati (*Rif. Med.*, January 14, 1895) reviews recent knowledge with regard to spinal syphilis. It is generally admitted now, he says, that syphilis may produce myelitis directly as well as indirectly; it may come on six months or less after infection,

or after ten or even twenty years. Of the three chief clinical types (meningitis, meningo-myelitis, and myelitis) the rarest is meningitis; it is the most favourable as far as prognosis and treatment are concerned, and is frequently characterised by nocturnal rachialgia comparable to the nocturnal headache of syphilis. The meningo-myelitic variety presents two distinct phases:—(1) Prodromal or meningitic, often complicated with cerebral symptoms (headache, visual affection, paralysis of cranial nerves, &c.); (2) spinal paralysis. This type of meningitis, commencing in the brain and travelling downwards, is typical of syphilis. In a considerable number of cases, however, the meningitic symptoms are wanting or are very slight. Acute forms (with complete sphincter paralysis, profound sensory disturbance, and marked trophic affections—for example, bed-sores—may occur and cause death in a month, being little influenced by treatment. Trachymeningitis, especially affecting the cervical region, may give rise to pseudo-tabetic phenomena. The myelitis of syphilitics presents in some cases anatomical characters such as to enable one to affirm that there exists a legitimate syphilitic myelitis, which may sometimes be acute. Fournier's "neurasthenia syphilitica" is probably in some cases only the prodromal stage of syphilitic myelitis. In general one may say that spinal syphilis is a serious disease; even when life is not threatened, the disease is rarely completely cured. (Epitome of the British Medical Journal, February 9, 1895, p. 21.

STRIDULOUS LARYNGITIS IN CHILDREN.—

Treatment of.

M. Huchard, in the *Journal des praticiens* (December 1, 1894), remarks that the opinion that stridulous laryngitis in children is always a benign disease should not be credited too much. He had observed the case of a child in whom cyanosis and asphyxia were so intense that tracheotomy had to be done. It is known, he says, that stridulous laryngitis is composed of two elements, inflammation and spasm of the larynx, and the danger in these cases is the spasm and not the inflammation, which may be slight or intense without increasing the gravity of the case. Before surgical intervention is resorted to, however, early medical treatment should be instituted. M. Huchard does not hesitate to prescribe sixty or even seventy-five grains of potassium bromide a day for a child four years and a half old, given in large doses; it is important, however, that these doses should be given in the beginning, without fear of toxic accidents, in order to insure prompt and sure sedation of the glottic reflexes. This treatment must be continued for from five to eight days at the least, for clinical experience has shown that the attacks of false croup may be repeated for several

nights. Such is the necessary medical treatment of stridulous laryngitis, whether benign or serious. With regard to surgical intervention, one must resort to the last extremity when all medical means have been exhausted, and when there is danger of asphyxia. The two methods of surgical treatment are tracheotomy and intubation of the larynx. It must not be forgotten, says M. Huchard, that during measles very serious forms of acute laryngitis, which simulate croup, may be observed at three periods: in the beginning, when the eruption appears, and during convalescence. (New York Medical Journal, December 29, 1894, p. 832.)

TETANY AND CHRONIC DILATATION OF THE STOMACH.

At the Clinical Society on October 12, 1894, Dr. Soltau Fenwick described a fatal form of tetany associated with chronic dilatation of the stomach. Case 1: A man aged thirty-four was admitted into hospital in 1893 for severe vomiting and cramps in the arms and legs. He stated that for six months he had suffered from pain in the stomach after meals and attacks of vomiting. Two days before admission he was suddenly seized with cramps in the muscles of the thighs, legs, arms, and hands, immediately after vomiting a large quantity of fluid. The patient was found on examination to present the symptoms of tetany. The arms were flexed and adducted, the fingers clenched over the thumbs, and the lower extremities rigidly extended, with the feet in the position of equino-varus. The superficial and deep reflexes were exaggerated, and the urine was retained. The temperature was normal, but the respiration was somewhat hurried, and the face and limbs were rather cyanosed. The stomach was dilated to the umbilicus, and the bowels were confined. The tonic spasm disappeared suddenly on the fourth day of the attack, but reappeared three days later and lasted for fourteen hours. The urine contained a trace of albumen and sugar.—During the next ten days the patient remained free from the disease and could move his limbs with ease, but at the end of that time the spasms suddenly returned and continued for an hour and a half. After another mild seizure, which occurred three days afterwards, the disease disappeared for more than a fortnight, but a renewal of the vomiting was followed once more by tonic spasm of the extremities, and on this occasion the muscles of the jaw and neck also became stiff. The temperature rose rapidly, the patient became comatose, with dilated pupils, and death supervened from respiratory failure within twelve hours of the commencement of this, the seventh, attack of tetany. At the necropsy the stomach was found to be considerably dilated owing to the contraction of a chronic ulcer in the pyloric end of the organ.

The other organs were healthy. Case 2: A man aged forty-six, who had suffered from the symptoms of ulceration of the stomach for four years, was suddenly seized with tonic spasms of the extremities after an unusually severe attack of vomiting. The condition closely resembled true tetany, and the seizures were repeated several times. The stomach was found to be considerably dilated, and it was accordingly washed out with warm water, and the patient was instructed how to perform the operation for himself. Two years later there had been no recurrence of the spasms, and the general health had improved considerably under the use of lavage twice a week. The stomach was still dilated, but the pain and vomiting were much less severe. Tetany complicating chronic dilatation of the stomach was first recorded by Kussmaul in 1869, and since that time 26 cases of the affection had been published. In the majority of these the gastric symptoms had been present for many years, and in 92 per cent. of the cases which were submitted to a necropsy a chronic ulcer in the vicinity of the pylorus was found to be the cause of the dilatation of the stomach. In every case the tetany followed severe vomiting, the attacks lasting from one hour to several days. In 7 cases the condition of tetany was further complicated by seizures of a tetanic nature, in which trismus and opisthotonos were usually marked symptoms, while in three others epileptic convulsions supervened. All varieties of the disease were extremely fatal, especially the two latter, and of the 26 instances of the affection no fewer than 18, or about 70 per cent., terminated in death. It is probable that in these cases an organic poison was manufactured in the stomach which by its absorption into the general circulation acted upon the central nervous system as a convulsant. The rational treatment was the regular employment of lavage, either warm water or a weak solution of resorcin being used. (*The Lancet*, Oct. 20, 1894, p. 914.)

TRAUMATIC PERIPHERAL NEURITIS. — Treatment of.

In the *Presse médicale* for December 22, 1894, M. Delorme presented the following treatment for neuritis:—The cicatrix is seized between the thumb and forefinger and pressed with great force for several seconds; an interval of a few minutes is then allowed to pass, and the pressure is again applied. Generally one application is sufficient; but in obstinate cases the pressure has to be applied two or three times at intervals of from three to four days. The results obtained from the application of a method so simple and so easy are said to be excellent. M. Delorme cited eight cases which had come under his observation in which there had been complete recovery. (*New York Medical Journal*, January 12, 1895, p. 64.)

TUMOURS INVOLVING THE BASE OF THE SKULL.

Before the Pathological Society of London on December 18, 1894, Mr. Cecil Beadles read a paper on two cases of tumour involving the base of the skull. He said that the vast majority of growths springing from the pituitary body came from the anterior lobe; they were for the most part glandular in structure, with cystic formation, and were characterised by the slow development of cerebral symptoms from pressure. Hemorrhage into their substance was common. He remarked that a large proportion of the malignant growths of the brain seen in insane people originated in the pituitary body. He then described a case of glandular carcinoma which involved the capsule of the hypophysis cerebri, which also contained squamous-celled elements; the primary growth probably sprang from the ear. In the second case there was a large tumour of the size of an orange, which in structure resembled a sarcoma, but epithelial cell masses were likewise seen in it. The patient was a man aged forty years, and a naso-pharyngeal polypus had been previously removed in St. Thomas's Hospital. The cerebral growth was probably a secondary deposit. (*The Lancet*, December 22, 1894, p. 1482.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ABDOMINAL AORTA.—Embolism of.

Dehio (*Münch. med. Woch.*, October 23, 1894) reports a case in a man, aged 27, who had suffered from valvular disease for some seven years. He was suddenly seized with severe pain in the epigastrium, coldness of the extremities, and swelling and loss of power in the left leg. He improved, but three weeks later sudden pain in the abdomen again appeared, with paraplegia. On admission the skin of the legs was blue, sensation in them diminished, and pulsation in the posterior tibials absent. There was a loud systolic mitral murmur. He vomited a large quantity of bluish-red fluid, and died some four hours after admission. At the necropsy the mitral orifice was found stenosed and incompetent. The peritoneum over the intestine was of a reddish-violet colour, and a hemorrhagic exudation was present in the peritoneal cavity. An old clot was found in the otherwise healthy abdominal aorta extending from the renal artery to the inferior mesenteric. It did not fill the vessel completely, but the space between it and the vessel wall was occupied by fresh clot. Below it there were two other thrombi, the latter of which extended into the iliacs. There was an old

embolic clot in the left popliteal artery. The emboli were derived from the heart. The first symptoms were due to a partial obstruction of the aorta. Constipation was noted until the complete obstruction supervened. It is difficult to explain the paraplegia and loss of sensation. The author is inclined to think them due to the cutting off the blood-supply to the muscles and nerves. (*Epitome of the British Medical Journal*, November 24, 1894, p. 81.)

CARDIAC THERAPEUTICS.

In opening a discussion on the above subject before the Edinburgh Medico-Chirurgical Society, Professor Fraser took strophanthus as his typical remedy, because he had most fully studied its effects, and had found it the most efficient member of the group. It acted primarily on striped muscle, whereas digitalis was more effective on non-striped fibres. It was a more powerful cardiac tonic than digitalis; it caused a rise of blood pressure, but this was chiefly through the heart, inasmuch as its contractile action on the arterioles was very much less than that of digitalis. In the healthy subject it seldom had much diuretic effect. Its value in diseased conditions was best seen in cases of mitral disease, and those with regurgitation and much œdema were pre-eminently benefited by it. In mere stenosis there was less call for pure cardiac tonics, because with rest, diet, and general treatment, hypertrophy of the ventricle and compensation were in time established, and the equilibrium of the circulation restored. But in regurgitation through the mitral orifice, with great anasarca, excellent results were obtained from strophanthus. The frequency and irregularity of the cardiac contractions were reduced, and very marked diuresis was produced. Thus from 24 ounces of urine per diem before treatment, it was found after a few 5-minim doses of strophanthus that the quantity was doubled, and after three or four days' treatment it rose to 100, 110, or even more, ounces. In this respect it was superior to digitalis. The length of the systole was increased, and pulse tracings taken before and during treatment showed very marked changes. With regard to aortic disease, the most suitable cases were again those of regurgitation. In relation to changes in this valve and in the vessels generally, the value of iodide of potassium was emphasised. Angina was not always to be treated with nitroglycerine or nitrite of amyl. Probably the most successful drug was opium. Here also the value of strophanthus had to be carefully considered as supplementary. Sometimes there were angina pains with no tenseness of vessels, a condition he was unable to explain. Strophanthus was not without value in murmurs which were of mere functional significance.

Strophanthus had far less cumulative action than digitalis, and it caused very little gastro-intestinal disturbance. It was often desirable to combine various drugs with a view to more effective action on the heart. The nitrites might be combined with strophanthus, or caffeine, or iodide of potassium, and so on. He indicated three conditions in which in his opinion help from cardiac tonics could not be looked for : (1) Steatosis or other degeneration of the heart muscle to any marked degree, that is, to such a degree that the tonic had not sufficient muscle on which to act. (2) Such obstruction to the circulation from stenosis, that no amount of increased cardiac contraction could produce compensation. (3) Where degenerated myocardium and stenosis combined were so marked that compensation could not be produced, although neither the condition of the myocardium nor the amount of the stenosis separately was sufficient to prevent the establishment of compensation by the aid of cardiac tonics.

In the course of the discussion Dr. George W. Balfour said he still continued to use digitalis, and still found it a very serviceable weapon—that in short he could get “the heart to do anything he liked” by its aid. He advocated larger doses of digitalis where there were dilated chambers that one wished contracted ; these doses to be given frequently for a short time. If untoward cumulative effects were seen, the drug could be stopped and resumed again. The combination of the infusion of digitalis with iodide of potassium gave him excellent results, especially in cases where the arteries were old or atheromatous. Similarly digitalis could be combined with other drugs with much advantage. But there were many other things of great service besides cardiac tonics, and we were too apt to forget or ignore these—rest, diet, and general constitutional treatment. Many heart cases required no cardiac tonics—for example, most of the group called palpitation. Digitalis was an indigenous drug, it had special feeding or tonic properties which no other drug had to the same extent ; its so-called cumulative action was often a delusion, since this very action was, if it really existed, only the result of one of its most valuable properties when it was being misused or overused.

Sir Thomas Grainger Stewart remarked that he got best results from digitalis ; but undoubtedly in grave emergencies, where very rapid action was needed, strophanthus was superior to digitalis. He thought we ought not to give cardiac tonics in changes in the valves of an active inflammatory nature, where, for example, a valve was crumbling. He could not understand the terror of some of their brethren regarding the use of digitalis in aortic lesions. He was a firm believer in combining other remedies with digitalis, for example, caffeine, iron, arsenic,

strychnine, &c. He urged the great importance of using mechanical aids to relieve an embarrassed heart. Thus, aspiration of one or both pleural spaces gave incomparable relief. It might be that only a few ounces of fluid were drawn off, yet the help was remarkable. Sometimes the area of dulness might be very slight, and yet when the aspirator was used a large amount of fluid came off. Probably in such cases the diaphragm was depressed and flattened. (*British Medical Journal*, February 16, 1895, p. 368.)

HEART FAILURE IN FEVERS.—The Signs of.

M. Huchard has made an important statement to the Société Médicale des Hôpitaux regarding the signs of heart failure, which, he thinks, should not be limited exclusively to the determination of the weakening or the disappearance of the first sound. There are, besides this weakening, two other symptoms which he has observed: these he has named the embryocardiac and the bradydiastoliac, or prolongation of the cardiac diastole (*The Sanitarian*). This last symptom was studied some time previously by M. Huchard as a new prognostic symptom in diseases of the heart. He insists upon these facts, and advances proofs to support their correctness, and to show that there are often great errors committed in the diagnosis of acute myocarditis in fevers, and especially in typhoid fever. In this disease the autopsies he has made have proved to him satisfactorily that often, in very grave symptoms of heart trouble, there were hardly any appreciable lesions of the muscular constituents of the heart, and reciprocally. On the other hand, there may often appear in cardiac sclerosis considerable myocardiac lesions, and that even while life may last for a great length of time. In emphasising these conditions, the results of his personal observations and of the previous observations of Bernheim, of Nancy, in 1882, he has shown that many of the symptoms attributed to myocarditis of typhoid fever must be referred to the effect of functional disturbance, or to lesions of the cardiac nervous system. In all these cases it is certain that the symptoms of myocarditis of infectious conditions, admitted by the greater number of authors, do not exactly reproduce those which he has studied since 1870, with Desnos, in cases of variola. This latter disease may produce myocarditis; typhoid fever causes myocarditis with cardiac nervous troubles, which exert a preponderating influence, and the grippe, which resembles typhoid in this respect, as determining myocarditis, but causes other disturbances of cardiac innervation which he studied four years ago, long before Sampson, of London, who has made a report on the subject to the Medical Society of that city. These researches and these considerations have a great practical importance;

they show clearly that the poison of typhoid acts on the heart like digitalis ; this agent should not be employed indiscriminately in the treatment of a case of typhoid fever complicated with cardiac symptoms. Injections of caffeine, of ergotine, and even cold baths, should be employed in preference. (New York Medical Record, November 24, 1894, p. 653.)

PERICARDITIS.—An Early Sign of.

In the *Journal des praticiens* (November 24, 1894) M. Josserand advised physicians to look for the indication from the outset of the disease, as it would appear early, preceding the appearance of the friction sounds. On auscultation at the base of the heart in acute rheumatism, first at the situation of the aortic murmur and then at the situation of the pulmonary arterial murmur, the second sound is sometimes found to be more intense at the latter point, also louder, clanging so to speak. The reverse of this is observed in chronic aortitis, where the murmur is louder at the right side of the sternum than at the left. Sometimes also, this difference is easily felt by the hand (exaggeration of the diastolic shock of the pulmonic valves). The existence of this sign would lead us to look for the friction sound, which is often discovered at that time, when a superficial auscultation would have allowed it to be overlooked. This condition of the second sound is transitory ; it precedes the friction sound by from one to three days, then disappears rather quickly, and the friction sound replaces it. In acute pericarditis, says M. Josserand, the friction sound is situated along the left border of the sternum and above the apex. The subjacent myocardium in the neighbourhood of the infundibulum of the pulmonary artery is congested and covered with fibrinous deposits. It is that which increases the pulmonic sound. M. Josserand thinks that the clinical value of the sign is considerable, because it enables us to determine the diagnosis promptly, and to institute revulsive medication at the proper time. (New York Medical Journal, December 15, 1894, p. 768.)

PORTAL THROMBOSIS AND HEPATIC INFARCTION.

At the Pathological Society, on February 19, 1895, Dr. N. Pitt showed two specimens of portal thrombosis and infarction of the liver. The first specimen was removed from a man aged 36, admitted into Guy's Hospital after an injury to the abdominal wall. He had a strangulated scrotal hernia, associated with bruising of the bowels. Death resulted from membranous enteritis and paralysis of the bowel. In the right lobe of the liver there was an infarcted area, with a thrombosed portal vein in its centre. Though the liver showed no bruising, yet

probably the blow injured a branch of the portal vein and so gave rise to the thrombosis and infarction. Dr. Pitt showed a second specimen taken from a patient who had been under Dr. Washbourn's care. The man was aged 48, and after recovering from an attack of hemiplegia, he succumbed to a second seizure. Two patches of thrombosis were found in the aorta and other thrombi were present in the renal, splenic, and cerebral arteries. The greater portion of the portal vein and the right middle hepatic vein were thrombosed. The liver showed numerous infarcted areas, some being deeply engorged and others pale. Though the whole splenic artery was blocked, yet infarctions only occurred here and there in the spleen, and the same remark applied to the brain. (The Lancet, February 23, 1895, p. 485.)

PRESYSTOLIC APEX MURMUR OCCURRING WITH AORTIC DISEASE AND WITH ADHERENT PERICARDIUM, WITH ABSENCE OF MITRAL STENOSIS.

A low-pitched presystolic murmur may occasionally be heard over a small area immediately around the impulse in cases of aortic regurgitation. The high-pitched, blowing, diastolic murmur is possibly audible from the base to the apex, and even outwards into the axilla, but just at the point of the heart's impulse a rumbling sound takes its place. Such a low-pitched sound will probably be made to disappear by slight pressure of the stethoscope, and may thus be overlooked. Cases, however, have been recorded in which a more or less well-marked presystolic apex murmur was present where aortic valve disease was the only heart lesion. In the case recorded a well-marked presystolic murmur and a presystolic thrill existed in association with incompetence of the aortic valves, but with a perfectly normal mitral orifice. It is now well known that the physical signs of mitral stenosis may occasionally be present in cases of disease of the aortic orifice; and in examining the records of a large number of cases of death from various forms of heart lesion at Guy's Hospital I discovered several more or less well-marked instances of a presystolic apex murmur where the aortic orifice alone was affected. There is also a form of presystolic murmur in which I am somewhat interested, a murmur occurring in dilatation of the heart in which neither mitral stenosis nor aortic disease is present, but the most common lesion is adherent pericardium. Brief notes of twelve cases of diastolic or presystolic apex murmur occurring without mitral stenosis or disease of the aortic valves are given. Ten of them are from the Guy's Hospital records. Of the twelve

cases, in eight the pericardium was universally adherent, and in only two the pericardium was healthy. In five other cases of general adhesion of the pericardium a presystolic apex murmur was heard, but they have been excluded because the pathologist thought the aortic valves probably incompetent. In all these cases there was adhesion of the pericardium. It is therefore evident that there are two entirely different pathological conditions that will give signs simulating those of mitral stenosis—namely, disease of the aortic orifice and adherent pericardium. Such being the case, it is reasonable to conclude that some condition common to both must be concerned in the production of the murmur. The most obvious feature is dilatation of the left ventricle, and it may be supposed that the mitral orifice is small compared with the size of that cavity and thus produces a virtual stenosis. The large size of the orifice, however, in some of the cases of adherent pericardium excludes the possibility of such an explanation, and curiously enough it was in those forms of heart disease in which a virtual stenosis probably exists that, with one exception, I failed to find instances of a presystolic apex murmur having been noted. I refer to cardiac dilatation due to chronic Bright's disease, and to less definite but probably not infrequent causes such as alcohol and overwork. Since we reject a virtual stenosis as an explanation, we must consider what other conditions may be present in a dilated left ventricle. It may have been noticed in the post-mortem room that when a dilated ventricle is present the large anterior flap of the mitral valve may be held taut by columnæ carneæ and chordæ tendineæ that have not fully shared in the dilatation. During life, as the ventricle becomes filled during diastole this state of tension must be present in the large mitral flap, which, held out in the moving blood currents instead of falling against the septum, may be left free to vibrate. Dr. Stacey Wilson, in his interesting lecture upon Dilatation of the Right Side of the Heart, gives a similar explanation for the diastolic murmur sometimes heard over the right ventricle. On endeavouring to accept such a view we, however, again meet with difficulty. If such an explanation were correct one would expect a presystolic apex murmur to be common in dilatation of the heart from any cause, and especially in those cases of dilated heart in which the mitral valves remain healthy—for example, those consequent upon Bright's disease and other causes affecting the heart muscle. That being the case, we are driven to consider whether there is anything else in common between enlarged hearts due to disease of the aortic orifice and to adherent pericardium. Possibly in both the innervation may be affected. In the pericarditis that precedes adhesion of the pericardium it

is difficult to understand how the nerves coursing superficially over the blood-vessels can entirely escape, and in cases where aortic regurgitation is due to aortitis, causing dilatation of the aortic orifice, the nerves passing downward in the sheath of the aorta may possibly be affected, as Lanceraux has long believed. In cases where the rumbling apex murmur is associated with disease of the aortic valves and not of the aorta we can hardly suppose that any affection of the nerves is present, yet the frequency of cardiac pain suggests that in some obscure way the innervation of the heart is affected, or that the heart muscle is functionally disturbed. Allowing that in some cases of presystolic murmur occurring without mitral stenosis there is a deranged nervous mechanism or some unusual alteration in the muscular action, the question of the mode of production of the murmur still remains to be explained. Possibly there is a loss of muscular tone and vibrations of the muscle wall are set up by the inrush of blood on contraction of the auricle. But whatever the explanation of the murmur may be, the fact remains that mitral stenosis is not the only heart lesion that will give rise to a presystolic murmur. (Dr. T. Fisher, *The Lancet*, March 9, 1895, p. 608.)

SEDATIVES IN HEART DISEASE.

At the New York County Medical Association on October 15, 1894, Dr. H. A. Hare, read a paper on the use of sedatives in heart disease. There were drugs, he said, which were entirely different from digitalis and the other ordinary cardiac stimulants which could often be used with very happy effect. He then stated that he was accustomed to depend upon aconite, veratrum viride, and gelsemium. It was the common belief that in almost all heart troubles a stimulant was required, but he believed that this opinion was erroneous. Many gave nitro-glycerine under the impression that it was a stimulant, while in reality its action was sedative. He could not doubt that the use of digitalis was greatly abused by the great mass of practitioners. He then related two illustrative cases in his practice. In the first, in which there was œdema and marked digestive trouble he gave digitalis with nux vomica, and in the other, in which there was no œdema but a good deal of palpitation, he gave aconite. In both instances the most complete relief was afforded. In the first the heart was weak and needed aid, and in the second the heart was strong, but with irregular action. There was a third class of cases in which such a sedative as aconite, and not digitalis, was required. This was where there was excessive hypertrophy, and it was commonly met with in those who after engaging in a life where extreme muscular activity is called for devoted themselves to quieter avocations. The compensating

hypertrophy then became excessive. He had frequently observed this condition of affairs in medical students who during their previous collegiate course had devoted themselves assiduously to athletics. In their less active life the heart became irregular in its action and palpitation was frequent on going upstairs, &c. In these cases the fluid extract of aconite in doses of one or two minims acted most satisfactorily. Rest in bed, however, was a necessary adjunct of the treatment. In cases of this kind the hearts were too large and with too powerful action for the work required of them in the changed conditions of life in which the patients were placed. Next to aconite as a heart sedative he ranked gelsemium, and in the third place esteemed veratrum viride. (Boston Medical and Surgical Journal, October 25, 1895, p. 419.)

SENILE PLETHORA, OR HIGH ARTERIAL PRESSURE IN ELDERLY PERSONS.

In the Hunterian Lecture on the above subject delivered before the Hunterian Society on February 27, 1895, Professor Clifford Allbutt narrated several cases typical of the condition. They all presented the same features, "symptoms obscure in so far as any particular parts or organs were concerned, but obvious and miserable enough otherwise"; the patients were "sluggish, sleepless, wretched on awaking of a morning, nervously perturbed," with "some of the classical symptoms of hysteria." In all there was a remarkably hard pulse with "thudding" aortic valve sound, and none of them showed any feature in the urine leading to any suspicion of incipient or established renal disease. All of them were relieved by drugs adapted to lower blood pressure, and relieved most strikingly. Occasional mercurial and saline purges, and a course of iodide of potassium, pushed freely, the lecturer had found to give almost complete relief; nitro-glycerine was also useful. Professor Allbutt had found it commoner in women than in men; gout either declared or suspected was much oftener absent than present, and renal disease and arterial degeneration were conspicuous by their absence also; and even "renal inadequacy" could be excluded. That the blood in senile plethora was at fault, primarily or secondarily, was probable, and that it was altered in some way which set up peripheral arteriolar contraction, was the conclusion; but "beyond this I feel unable to proceed, if indeed I ought to go so far." (British Medical Journal, March 9, 1895, p. 535.)

STROPHANTHUS AS A CARDIAC TONIC.

At the Medico-Chirurgical Society of Edinburgh, on February 28, 1895, in the course of an adjourned discussion on cardiac therapeutics, Professor Greenfield said that he

intervened in this discussion solely in order to bear testimony to the enormous value of strophanthus, which he regarded as one of the most important therapeutic agents discovered of late years. It would be disastrous if the impression were conveyed that the leaders of medical opinion in Edinburgh regarded strophanthus with distrust, and as only applicable to critical conditions. He felt a duty to give his emphatic testimony to its value, not as an exceptionable, but as the most commonly applicable of all the group of special cardiac agents. To its use he owed the life of many patients and friends, in conditions which before its introduction he would have regarded as hopeless, and in cases where all known remedies, including digitalis, convallaria, &c., had absolutely failed. For nine years he had used it in a large variety of conditions of cardiac failure, including cases of all forms and combinations, of valvular disease: dilatation from senile degeneration and from acute strain or disease, as in acute pericarditis in pneumonia: in acute pneumonia, including influenzal, where cardiac embarrassment was so often the cause of death; in severe prostration from hemorrhage; after severe operations, including those where peritonitis was present, &c., and in febrile conditions with consequent rapid action and tendency to failure of the heart; in febrile delirium tremens, &c. In the severe forms of acute dilatation, senile and other, its effect was most striking. And if only for its value in severe cases of acute pneumonia it would rank as an agent of unsurpassed value. He had, on a rough estimate, used it in about 400 cases of these diseases in hospital practice alone, apart from other cases. He need hardly say that it was used in conjunction with all other suitable remedies appropriate to special conditions—such as rest, or, in some cases, moderate exercise, posture, relief of bronchitis or other associated conditions, attention to food, condition of stomach and bowels, removal of dropsical effusions, &c.—on which he supposed all agreed. Nor need he mention further the value of combination of other drugs, as nitrites, alcoholic and other stimulants—tonics, such as arsenic, iron, strychnine, &c. He had frequently alternated its use with that of digitalis, in order to judge of their comparative value in various conditions. The result had been that whilst in some cases, especially in certain well-defined conditions with which all are familiar, digitalis proved equally or more efficient, in the vast majority strophanthus was safer, more certain, and less attended with danger, and succeeded where digitalis proved useless. Objections had been made to the want of uniformity of strophanthus preparations. This was no doubt true to some extent. But the defective action was soon perceived, and a better supply could be readily obtained. This fact pointed only to the necessity for

proper pharmacological experiment before allowing its sale, for the defects were due mainly to the use of bad or used-up material, and the vendors should be prosecuted for the sale of bad preparations. But could anyone say that digitalis was better in this respect? All pharmacologists agreed that the preparations of digitalis were most uncertain in the amount of the various active ingredients contained in them. Moreover, its tendency to cumulative action, the uncertainty of the time of the appearance of dangerous symptoms, &c., rendered it necessary to restrict the employment of large doses to a limited period. On the contrary, the action of strophanthus was so rarely attended with this risk that it could be given continuously in large doses where needed. In only one case, the first in which he used it, had any serious toxic symptoms appeared, probably as the result of idiosyncrasy, and no such case had since come under his notice. In some critical cases, where there appeared to be almost no hope of recovery, he had given very large quantities—ten, fifteen, and even twenty minims every two hours—and with resulting cure. In such cases it was necessary to give it with the finger on the pulse, diminishing or increasing the dose as it appeared necessary. From the remarkable results of cure in formerly hopeless cases he was convinced that neglect of this remedy would result in the loss of many valuable lives. Hence he would urge those of his colleagues who were doubtful of its utility to try it again. (The Lancet, March 2, 1895, p. 551.)

TREATMENT OF HIGH ARTERIAL PRESSURE.

The fact that high arterial tension is a condition which requires medicinal interference has become more and more recognised as we have employed the nitrites with constantly increasing frequency. Indeed, it is probable that many physicians of the present day who employ nitro-glycerine or other nitrites as cardiac stimulants, in reality get the good results obtained solely through the decrease in the arterial tension, which results in the easier action of the heart. In other words, the improved action of the heart after nitro-glycerine has been given is not due to the fact that it has acted as a cardiac stimulant, but rather that by decreasing the work of the heart that organ is able to perform its functions more satisfactorily. A mistake is frequently made by the careless physician when called to a case in which the heart is evidently failing. Signs of cardiac exhaustion and of dilatation divert his attention from the high arterial pressure, and, as a result, he jumps to the conclusion that the failure of the heart is due to an actual lack of strength in that viscus, when in reality its failure is produced not because it is weaker than normal, but because the arterial tension is so great that even with compensatory hypertrophy it

is almost impossible for it to force the blood through the contracted blood-vessels. Too frequently, under these circumstances the physician attempts, by the administration of digitalis, strophanthus, or other cardiac stimulants, to so increase the power of the heart that it will overcome the tremendous resistance to its normal action. Sometimes, under the effect of this stimulation, temporary improvement does take place, but the rational therapeutics of such a case demands that the pressure shall be taken away, and the heart not only allowed to rest, but also quieted, in some cases, by drugs which, if not direct cardiac depressants, certainly act as sedatives to this organ. It would seem that in many cases of high arterial tension the spasm of the vessels is due more to a condition of hyper-excitability of the vasomotor system than to any direct pathological change in the blood-vessel walls. For this reason the administration of nervous sedatives is often of advantage, either with or without the use of nitro-glycerine. In many cases, as is well known, the use of nitro-glycerine, while indicated by the condition of arterial tension, is contra-indicated by reason of the headache which it produces in susceptible persons, and in such instances this prescription may also be given with advantage. (Medical Record, January 19, 1895, p. 81, from the Therapeutic Gazette.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ÆGOPHONY.—The Causation of.

Dr. Frederick Taylor, in a paper read before the Royal Medical and Chirurgical Society on February 12, 1895, endeavoured to show that :—(1) Ægophony is no more than, nor different from, ordinary musical discord or dissonance ; (2) this discord is the result of beats occurring between the higher harmonics of the note uttered by the patient ; (3) the beats constituting the discord are audible because the higher harmonics are reinforced, while the fundamental tone and lower harmonics are suppressed ; (4) both the reinforcement and the suppression are due to modifications of the bronchial tubes, which cause them to resonate the higher harmonics and not the lower. Discord was favoured by (1) the pre-existence of high harmonics in considerable force, such as was known to be the case with syllables containing the vowels “e” and “i” ; (2) by reinforcement of the higher harmonics ; and (3) by suppression of the lower harmonics and fundamental tone. The last two conditions could be effected by modifications of the resonating qualities of the bronchial tubes, such that they would resonate very high

tones and would not resonate the lower normal tone. It was argued that such an alteration in the resonating qualities of the tubes was a sufficient explanation of ægophony without the necessity of conceiving that liquid in the pleural cavity cut off the lower tones. It was shown that there was no ground for believing that liquid cut off lower notes and transmitted higher, or that higher notes were in general more penetrating than lower notes. It was shown, further, that the familiar sounds, such as nasal voice, the Punch and Judy voice, and others, with which ægophony was compared, did not depend on transmission of sound being affected by a layer of fluid, but on differences in the resonating spaces. Some remarks were then made on the position in which ægophony was usually heard, with observations of 21 cases, from which it was shown that ægophony was not always limited to the upper part of the area of dulness. The occurrence of ægophony in the absence of pleural liquid was then discussed, and a case was quoted showing its appearance in pneumonia with plugs or casts of fibrin in the bronchial tubes. The conclusion was that, though ægophony was most frequent in the presence of liquid because the liquid compressed the lung, it might be produced by alterations in the bronchial tubes independent of liquid. (*British Medical Journal*, February 16, 1895, p. 363.)

CAFFEINE IN SPASMODIC ASTHMA, &c.

In the writer's practice, caffeine has long held the first place in the treatment of the paroxysm of spasmodic asthma; and it is his conviction that the drug is deserving of much wider recognition than it has hitherto obtained in the management of this intractable and erratic complaint. Success does not always attend its use, but its failures are perhaps fewer than those of any other remedy; and again and again has it happened that when drug after drug and specific after specific have proved unavailing, caffeine has afforded relief. As with other therapeutic measures in this disease, no absolute rule can be laid down with regard to the class of case in which the administration of caffeine is likely to be successful, or the reverse; but it appears to act with more certainty in adults than in children. As would also be anticipated, a good result is more likely to be obtained when there is an absence of sources of peripheral irritation, such as the existence of dyspepsia or of nasal polypi; but here again no definite line can be drawn, as in some instances of digestive asthma the relief afforded by caffeine is marked. Benefit is usually most conspicuous in patients whose paroxysm is wont to commence in the early hours of the morning, waking them from sleep. With regard to dose and mode of administration, the writer is in the habit of prescribing the citrate of

caffeine ; and the average adult dose is 5 grains, which can be taken either in a *cachet*, or dissolved in water. When a paroxysm of asthma is present, 5 grains are ordered every four hours until the bronchial spasm is relieved ; after which the remedy may be given at longer intervals, to avert any tendency to relapse. In the case of patients whose attack comes on fairly regularly in the early morning, a dose of 5 or 10 grains at bedtime often suffices to avert the paroxysm, or, at all events, to render it so slight that the patient is able to sleep through it, and wakes in the morning with some sensation of tightness in the chest, which a further dose or two of caffeine removes ; but if the asthmatic attack wakes the patient in spite of the evening dose, he takes 5 grains immediately, and again in an hour, two hours, or at longer intervals, as may be necessary to subdue the spasm. The effervescing hydrobromate of caffeine is inconvenient for use, as it contains only 1 grain of the drug to the teaspoonful, and consequently the quantity requisite to convey the dose of 5 grains is large. The writer has not had occasion to administer caffeine by hypodermic injection. The influence of caffeine in relaxing spasm is not limited to bronchial asthma, but is also exerted in any morbid condition in which muscular contraction of the bronchial tubes is a factor ; and it is proportionate to the amount of such spasm which is present in any given case. (Dr. Markham Skerritt, *The Practitioner*, April, 1895, p. 319.)

EMPHYEMA IN CHILDREN.—Treatment of.

At the Medical Society of London, on January 28, 1895, Dr. Cautley read a paper on "The Treatment of Empyema in Children." Solis Cohen mentioned that absorption of pus from the pleural cavity was practically a myth, and said the late Dr. Sturges was of opinion that resection of rib was necessary, and that the small mortality of empyema in children was due to improved treatment in this respect. Sutherland went even further, and insisted on the necessity of washing out the cavity. Dr. Cautley had analysed a series of 84 cases with a mortality of 16·6 per cent. In respect of the cases in which no surgical treatment was adopted, the fluid might of course be absorbed, but it might also rupture externally through the chest wall or internally through the lung. There was a considerable element of danger in leaving these cases to themselves, though in a certain proportion of such cases, either when left alone or treated by aspiration, absorption did take place. Of 12 cases treated by aspiration only 1 died, 1 ruptured externally, and 1 discharged through the lung. Of 35 treated by incision and drainage 7 died, while of 33 treated by resection and drainage 6 died. A comparison of the two latter tables showed that the average

age was practically the same, the mortality almost the same, and the duration of the after-treatment only differed in the matter of one or two weeks in favour of resection. It was a remarkable fact that five out of six cases under two years of age treated by resection died. An analysis of the fatal cases showed that in a large proportion death was not due to anything connected with the wound. The object of treatment was to remove the pus, to prevent reaccumulation, to procure complete re-expansion of the lung, and to leave behind no deformity. Although it was possible for small effusions to be absorbed, Dr. Cautley asserted most emphatically that in every case in which pus was present the only sound treatment was its evacuation. It might be conceded that aspiration was sometimes useful, and might cure cases in which the pneumococcus was the primary cause. The disadvantage of aspiration was that thick effusions would not pass through the cannula, that it was impossible to remove all the contents of the cavity, thus leaving behind a focus of irritation, and lastly, that pus rapidly reaccumulated afterwards. Moreover, there were certain dangers if the operation was performed too rapidly. On the other hand, it was useful in cases of urgency, in cases with thin sero-purulent fluid, and in cases of double empyema. The advantages claimed for resection were better drainage, facility for exploring the boundaries of the cavity, and for breaking down loose adhesions; also that there was less danger of hemorrhage, that the chances of recovery were better, and that recovery was more rapid. Dr. Cautley pointed out that none of these advantages were proved by the experience of this series of cases, and that it was sometimes a distinct disadvantage to break down adhesions. The disadvantages of resection were that it was more severe, and, judging by the mortality, ought never to be employed in children under two years of age; and that there was greater liability to pyæmia and deformity of the chest. It ought, he thought, only to be had recourse to in cases in which the tube could not be inserted without and when drainage was imperfect, or for the cure of an old sinus. The tube should be short and only left in for a short time. Empyemata did not heal by granulation from the bottom, but by expansion of the lung, ascent of the diaphragm, and contraction of the chest wall. The tube should always be removed as soon as the discharge became serous and scanty. If left in longer it became a source of irritation. Dr. Cautley stated that he had notes of a number of cases of double empyema, the treatment of which was practically the same, allowing a few days between the operations.

Mr. Morgan said surgical proceedings would be attended very frequently by a more speedy and satisfactory result if brought to bear at an earlier date. Physicians had almost a superstition

in favour of the aspirating trocar, and cases, he thought, were marred by the tentative measures its employment involved before a free opening was made. With regard to operation, Mr. Morgan greatly preferred resection to incision with drainage. Irrigation of the cavity, he thought, was a useful measure, as it detached a good deal of thick lining membrane.

Dr. Morison concurred in the advisability of early evacuation of pus, and thought that aspiration was only of use in cases where, owing to some emergency, the more complete operation was temporarily impossible. He preferred chloroform as an anæsthetic, and considered it safe, though serious results followed turning the patient on the side. The point of election was the sixth space, just in front of the posterior axillary line, and the method incision and drainage, most cases requiring the drainage-tube for little over a fortnight. He did not approve of irrigation, as he thought it was apt to set up irritation, which led later to restriction of chest movement. It was important during convalescence to adopt exercises for the expansion of the lung on the affected side. Resection, he thought, would prove to be only necessary in neglected cases. (*The Lancet*, February 2, 1895, p. 285.)

FŒTID EXPECTORATION TREATED BY INHALATIONS OF COAL TAR CREASOTE VAPOUR.

Dr. Chaplin read a paper on this subject before the Hunterian Society, in which he advocated the confinement of the patient for an hour every day in an atmosphere of the vapour of the common commercial tar creasote. The cases of foetid expectoration most suitable for this treatment were those arising from bronchiectasis. The method of application of this vapour consisted in placing the patient in a small chamber about 7 feet square, in the centre of which was placed a dish containing the creasote. This dish was heated, and the fumes quickly filled the chamber. By the penetrating odour of the vapour it was capable of reaching the dilated bronchus; by its irritating and antiseptic properties it was able to cause expulsion of the retained phlegm and to render aseptic the dilated bronchus. The effect of the inhalations, which were continued daily for six weeks or more, in six cases was to render the phlegm more or less free from odour. In two cases the smell was completely removed, and had not returned after a lapse of two months; in two others an occasional inhalation has to be used once or twice a week, by which means the foetor is controlled. The method is easy of application and inexpensive. (*British Medical Journal*, November 24, 1894, p. 1177.)

LARYNX.—Malignant Disease of the.

Dr. Semon appends the following conclusions to an important paper on the results of radical operations for malignant disease of the larynx, part of which appears at page 261 of this volume : If I were asked to what circumstances I myself ascribed the measure of success I have attained, I should answer without hesitation : to two facts, namely, (1) to the circumstance that my report refers to cases observed in my private practice only ; and (2) to the careful selection of cases for operation. With regard to the first of the two points just named, it has been my experience throughout that one sees patients afflicted with malignant disease of the larynx, particularly those who suffer from the intrinsic form, at a much earlier stage of the disease in private than in hospital practice. Patients in the lower walks of life do not take nearly as much notice of the hoarseness, which in the cases most suitable for operation commonly is by far the first symptom, as do those belonging to the more favourably situated classes. Further, I regret having to state as my experience that, if to hospital patients, even should they come early enough, the desirability of an early operation be explained, the usual result is that they simply cease to attend the out-patient department. In private practice matters are very different. It is, of course, almost always a great shock to the patient, who comes to be cured of what he believes is a simple obstinate hoarseness, if he is informed, however gently and gradually, that matters are much more serious than he anticipated ; but I can give it as the general result of my experience that, in almost all the cases I have seen, the patients, particularly when the diagnosis and the advice had been corroborated by a second independent opinion, have submitted to early operation and thereby, in all probability, saved their lives. I would make an earnest appeal to every general practitioner to help operators to further increase the rate of success by enabling them to arrive at a diagnosis at the earliest possible date. It is thought that the disease manifests itself, above all, by pain, difficulty in swallowing and in breathing, swelling of the glands in the neighbourhood of the larynx, and considerable general cachexia. This idea, which is not even necessarily quite correct in all its details so far as the latter stages of malignant disease of the larynx are concerned, is quite erroneous as regards its earlier stages, *i.e.*, those in which radical operation has a reasonable chance of success. Of twenty cases of intrinsic malignant disease of the larynx in which the starting point of the affection could be made out not less than fifteen, started from the vocal cords. In all these cases the first symptom, and for a long time the only one, was hoarseness. All the other symptoms above named may and do come in, as a rule, only when the disease is

already considerably advanced. Considering that it makes all the difference in the world whether one operates on a case of malignant disease of the larynx in which the affection is still limited to a vocal cord, particularly to its anterior end—such cases being by far the most favourable ones—or on a case in which it has extended, not merely to the adjacent soft parts, but to the cartilages themselves, it is the duty, I think, of every family attendant to remember that if a case occurs in his practice of a middle-aged or old patient suffering from obstinate hoarseness, without any other symptom whatever being present, he ought to be prepared for the possibility of this hoarseness being due to malignant disease, and should make a laryngoscopic examination himself or see that it is instituted by a competent observer. Nothing is more sad than to see patients in the later stages of the disease, when it has extended quite beyond the reach of operation, and to learn from the history of the case that it began by long-standing hoarseness. It is certainly a serious fact that, out of 55 cases of intrinsic disease in 35 cases the starting-point of this disease could no longer be made out with certainty. Now, as to the early diagnosis of these cases, in some instances it is easy enough, in other cases more difficult, and in a third category extremely difficult. In cases in which part of a projecting growth can be intra-laryngeally removed with cutting forceps, and in which the characteristics of squamous-celled carcinoma are discovered, it is, of course, plain enough sailing; in others, however, it is impossible, owing to the disease presenting itself in the shape of a uniform general tumefaction or to the microscopic examination yielding either indefinite or negative results, to arrive at an absolutely certain diagnosis. To ensure success in these cases it is most desirable that radical operation should be undertaken at a period when the disease is still of limited extent, and it has made an ever-deepening impression upon me that in the great majority of my own cases, as well as of those occurring in the practice of my friends in which I was privileged to be present as a spectator, the disease, after opening the larynx, was found to be much more extensive than had appeared from laryngoscopic examination. We cannot ascertain the condition of the entire subglottic cavity by means of the laryngoscope, or the extent of the sub-mucous infiltration, and we see in cases in which the disease starts from the vocal cords its superficial progress in the upward direction only. Better a thyrotomy performed where intra-laryngeal operation possibly may have sufficed than a life lost through undue delay of radical operation. It may confidently be hoped that if the principles described in this communication be acted upon—and, no doubt, be further perfected by others—we shall succeed in saving a large proportion

of sufferers who otherwise would be condemned either to lingering death or, at any rate, to operations much more severe and serious in their after effects than those adopted by myself. (The Lancet, December 29, 1894, p. 1532.)

NIGHT SWEATS, TREATMENT BY CHLORALOSE.

To the *Nouveau Montpellier médical* (October 6, 1894) M. Sacaze contributes the following observations:—That in persons affected with an advanced stage of pulmonary consumption the insomnia and the night sweats have disappeared almost completely under the influence of chloralose, and in a few cases the improvement has continued after only a few doses of the remedy had been taken, although as a rule the symptoms have returned when the use of the drug was suspended. In a very small number of cases this action of the drug is very slight, and, indeed, in exceptional cases, far from inducing sleep, it produces excitement and worrying dreams. With regard to the administration of chloralose, in order to avoid toxic effects, the author begins with the use of capsules, each containing three quarters of a grain. One of these capsules is to be taken, and, if at the end of half an hour sleep has not been induced, another may be given, and two more, if necessary, at intervals of half an hour. When the insomnia is very obstinate the dose may be increased to a grain and a half, but not more than four such doses should be given in the course of a single night. Moreover, in such cases it is sometimes advisable to give capsules containing, each, three quarters of a grain of chloralose and from two to three grains of sulphonal, and, if there are febrile movements toward evening, it is well to add a small quantity of quinine. (New York Medical Journal, December 8, 1894, p. 723.)

PLEURITIC EFFUSIONS.—Treatment of.

According to Dr. Ashton (*Therapeutic Gazette*, September 15, 1894), though most cases of pleurisy are undoubtedly of tubercular origin, we are in danger of losing sight of the fact that other agencies hold casual relations to the disease. Of these other causes the poison of rheumatism is probably the most important. It is possible to make a therapeutic test as to the nature of the affection, as the administration of the salicylates in cases of rheumatic pleurisy is followed by a rapid decline in the morbid process. Dr. Ashton then gives the testimony of various writers—Köster, Tetz, Jaccoud, Lamercy, Strümpell, and others—who have experienced the value of the salicylates in pleuritic effusion, several of them claiming that this treatment often avoided the necessity for operative procedure. Many also hold that the drug is useful in cases other than those of rheumatic origin. The dose of the salicylates administered is usually

a large one—viz., salicylic acid in 15 grain doses five or six times a day or salicylate of sodium in 20 to 25 grain doses three or four times daily. The author then mentions the dry treatment, which consists in a sparing use of fluids by the mouth and a depletion of the blood of its watery constituents by the administration of concentrated saline solutions, as advocated by Matthew Hay in dropsical effusions. Some writers hold that it is advisable in most cases to withdraw the fluid by mechanical means (aspiration, &c.) rather than run the risk of a re-absorption into the system of a fluid containing possibly tubercle bacilli or altered albuminous substances. The treatment of empyema is then briefly referred to, the ultimate conclusion being that a purulent pleural effusion is in reality an abscess, and demands the same treatment—namely, evacuation and free drainage. The author's conclusions are:—(1) The tubercle bacillus is the cause of the majority of cases of pleurisy. (2) A certain number of cases of pleurisy are due to rheumatism. (3) We should employ the salicylates in the treatment of the rheumatic cases, as having a specific action. (4) The salicylates are of value in cases of other than rheumatic origin. (5) As a rule, purulent effusions demand evacuation and free drainage. (Medical Chronicle, November, 1894, p. 125.)

PNEUMONIA.—Absent Knee-jerks, with Inaction of the Intercostal Muscles during Respiration in.

Dr. Hughlings Jackson states that he has recently found the knee-jerks absent in some cases of croupous pneumonia; absent in three, present in three others. Very likely the absence of these jerks in cases of pneumonia, or in some stages of it, has been noticed before. I wish to draw attention to the case of a male patient aged 23, in which I did not discover by auscultation and percussion any signs of involvement of any part of either lung, although the temperature (105° F.), rate of respiration (44), and pulse (90) were of the pneumonic character and relation. The knee-jerks were absent. I think that the case was probably one of pneumonia, so-called "latent pneumonia"—some deep-seated patch in the lung. But I think, considering a symptom to be presently mentioned, that it was one of myelitis too, or at least that there was some very local morbid change in the thoracic spinal cord. I do not mean that there was pneumonia "complicated with" myelitis or some other morbid change of part of the central nervous system, as will be understood when I add that, since observing the case of this patient, I have surmised that in cases of ordinary undoubted croupous pneumonia also there is some morbid change of the cord caused by pneumotoxin. I suggest that the central lesion is the cause of the non-pulmonary symptoms of

pneumonia, the high temperature, rapid respiration, and infrequent pulse (infrequent, I mean, only in relation to the respiration rate. I do not think the local pulmonary inflammation would produce such symptoms in such relation. There was a symptomatic condition (so to say, a double one) which I have never observed before in any kind of case; no doubt I have overlooked it. The patient's intercostal muscles acted not at all during his ordinary (but very frequent) breathing (respiration proper), but they acted perfectly when he drew in his breath when told to do so (voluntary movement). During respiration proper, whilst, as said, the intercostals did not act, the diaphragm acted well, perhaps in two short excursions, and also frequently; in other words the breathing of this patient was solely diaphragmatic. (The lowest part of his chest everted in inspiration—respiration proper—but the diaphragm by itself can evert the lowest ribs.) In the voluntary movement the intercostals acted well and the diaphragm not at all so far as I could make out, the epigastrium sinking; that is to say, the voluntary movement was made as a healthy adult male would make it. We see that the fact that a patient can expand his chest walls well by his intercostals when told (voluntary movement) is no proof that the other, the true respiratory movement of them, is present. The patient did well; his knee-jerks returned. At no stage of his illness was there any other paralysis discovered than that signified by inaction of the intercostal muscles in respiration proper; these muscles on his recovery acted normally both respiratorily and voluntarily. I infer, from the consideration of certain of Gaskell's most important researches, that in this patient the inaction of the intercostal muscles in respiration proper was owing to loss of function of lateral horns in the thoracic region of the cord; if so, the respiratory (medulla) centre (the lateral horns being, I presume, for respiration proper normally subservient to that centre) failed to effect anything upon the intercostal muscles, although it continued to act on some other of its subordinate centres of the cord, those which are for the immediate supply of the diaphragm. The voluntary service of the intercostals in drawing in the breath when told (so-called "forced inspiration") is of cerebral initiation; indeed, the word voluntary implies that. The fibres engaged in this voluntary service of the intercostals are, I suppose, some of the fibres of the pyramidal tract, which, evading the respiratory (medulla) centre, pass direct from the cortex cerebri to cells, not of the lateral horns, but to cells of the ventral part of the anterior horns, to those cells of those horns to which other fibres of the pyramidal tract go. (I think that during such voluntary non-respiratory, services of the intercostals the respiratory—

medulla—centre is inhibited by fibres from the cerebral cortex.) The inaction of the intercostals in respiration proper—since I thought it owing to a very limited myelitis or other local morbid change of some part of the lateral horns, if not of more of the cord—makes me surmise, as has been already said, that in ordinary cases of croupous pneumonia, cases with discoverable local pulmonary disease, there is a very local central morbid change, if not of the lateral horns, yet of some other parts of a cord district of which that tract is part. It may at any rate be worth while to search the cord and medulla microscopically of one who has died of pneumonia. We must bear in mind that Mott thinks that the intermedio-lateral tract is the visceral column. (The Lancet, December 22, 1894, p. 1472.)

Pneumonia.—Treatment of.

G. Ivanoff (Bulgarian *Meditzina*, No. 4, 1894, p. 20), senior physician to the Lom Hospital, says that he most successfully treats croupous pneumonia by the internal use of camphor with antipyrin (R. Camph. pulver. 0·5 gramme; antipyrin 2·0; morph. hydrochlor. 0·02; sacch. q.s. M. f. pulv. One-fourth to be given every one or two hours). In adynamic cases he simultaneously resorts to hypodermic injections of camphor in the dose of from 0·05 to 0·1 g., three or four times a day, for which purpose he employs a fatty solution (0·5 camphor to 0·1 g. olive oil). The writer reports a series of 22 cases treated consecutively by this method at the hospital during the period December 10, 1893, to March 15, 1894. All of them were rather severe, but nevertheless every one ended in recovery. The hospital registers for 1889 to December, 1893, show that, previously to the introduction of the treatment, from three to seven patients succumbed to the disease every year, the yearly number of pneumonia cases admitted oscillating between 20 and 30. (Epitome of the British Medical Journal, March 2, 1895, p. 36.)

PULMONARY PHTHISIS.—New Method of Treatment.

Dr. Carasso, of Genoa (*The Medical Magazine*, July, 1894), describes the treatment of phthisis by inhalation of oil of peppermint, and claims that it is absorbed into the system, exerting a powerful antiseptic action on the whole organism, and being eliminated by the lung. The method of treatment consists in:—(1) The almost continuous inhalation of the essential oil of peppermint. (2) The administration of creasote and essence of peppermint by the mouth. (3) Systematic over-feeding. Milk in large quantities, up to one or two litres of sterilised, or thoroughly well boiled milk. Meat and generous

wines are also advised. All possible hygienic precautions are to be observed. The author asserts that under this treatment complete cures were effected, not only in early phthisis, but also in more advanced cases, where the physical signs of cavities were unmistakable. The bacilli disappeared from the sputa in from 10 (minimum) to 60 (maximum) days. The cough and expectoration became less frequent, the night sweats became less severe, and the nutrition rapidly improved, the weight showing a notable increase. Later, resonance to percussion became normal, and ultimately vesicular breathing returned in the parts primarily affected. The results obtained in 43 cases of pulmonary tubercle, in most of which the morbid processes were very advanced, with the production of large cavities, were as follows:—Cured, 37; died, 6. (Coutts' "Pharmacology and Therapeutics," Medical Chronicle, November, 1894, p. 123.)

TREATMENT OF RESPIRATORY AFFECTIONS BY MEANS OF LARGE MEDICINAL INJECTIONS THROUGH THE LARYNX.

At the Royal Medical and Chirurgical Society on November 27, 1894, Mr. Walter Whitehead communicated a paper by Mr. Colin Campbell (Saddleworth) on "The Treatment of Respiratory Affections by means of large Medicinal Injections through the Larynx." Attention, he said, was first called to this method of treating certain affections of the respiratory organs in an article by Professor Rosenberg of Vienna. In spite, however, of the subsequent publicity given to the favourable results obtained by Professor Rosenberg and other observers, the method was still comparatively unknown to most practitioners in this country. The method, he claimed, was eminently rational, for it brought the remedial agent into direct contact with the diseased tissues, and this principle was too well recognised in surgery to require any argument. Something of the kind had already been done by the inhalation of vapours, &c.; but, he asked, what could a vapour do towards rendering a pulmonary cavity aseptic, and, also, what surgeon would like to undertake the treatment of a spinal abscess by "vapours" if he could wash it out first and then send in his antiseptic solution or fill the cavity with an aseptic absorbent? It was not yet possible to wash out pulmonary cavities, but, unlike abscesses, these cavities were constantly doing their best to empty themselves, and instead of vapours they could now send in the antiseptic itself. It was agreed on all hands that treatment by intra-tracheal injection was practicable, but after a very considerable experience of the method he had come to the conclusion that a good deal of practice was required to carry it out in a satisfactory manner.

He had given nearly four thousand injections and he had thought himself an adept after the first dozen, but subsequent experience had shown him that there was always something to be learnt in respect of the details. Most of the published cases dealt with the effects of the treatment in phthisis, laryngeal ulcer, and bronchiectasis, but during the past eighteen months he had tried it in other pulmonary diseases with, on the whole, very satisfactory results. He had only one case of bronchiectasis, and he used a mixture of 12 per cent. guaiacol, 4 per cent. menthol, and 84 per cent. olive oil, of which he injected a drachm or a drachm and a half twice daily. He continued the treatment for a month without any perceptible benefit, and he then came to the conclusion that olive oil was not the best vehicle for the purpose, so he adopted a mixture of guaiacol, menthol, and glycerine. Some glycerines proved very irritating, but distilled glycerine was free from this drawback. He had grouped his cases of phthisis according as there were cavities or only consolidation, with results which appeared in the list of cases appended. He used a syringe holding about one drachm and a half, which he emptied two or three times at each sitting. He used a laryngeal reflector the first time or two, but not after. To begin with, it was necessary to draw the tongue out, but the patient very soon acquired the power to dispense with this formality. If properly done there was no asphyxia, no pain, no cough even. It was very important to avoid touching the fauces, the base of the tongue, the epiglottis, or the rima glottidis with the nozzle of the instrument, and care should be taken not to squirt the mixture down the œsophagus, or vomiting would probably result. He passed the tube carefully through the mouth and fauces, and when the nozzle was seen to be behind and below the top of the epiglottis the tube ought to be rapidly passed through into the larynx and should fit the curve at the base of the tongue lying tightly against it, thus fixing the epiglottis and preventing spasm. This done, he injected the contents of the syringe immediately, either during inspiration or during the pause following expiration. If properly injected the patient was not conscious of the taste of the fluid injected. As his object was to advocate a principle of treatment rather than any drug or combination of drugs, he excused himself from dwelling upon the particular formulæ which he had tried. Almost anything might be injected, water, olive oil, or glycerine being used as a solvent, in quantities of from four to six drachms twice or three times a day, and this without any discomfort to the patient. (The Lancet, December 1, 1894, p. 1279.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ACUTE PANCREATITIS.

At the Clinical Society on October 12, 1894, Dr. J. E. Paul read the notes of a case of acute pancreatitis. The patient was a man aged 43. On the night of August 28, 1893, he was seized with pain in the abdomen; the pain was colicky in character and lasted only a few minutes. On the following day he had a recurrence of the pain. On that day he vomited twice, and once on the 30th. His bowels had been confined since August 27, for which he had taken some purgative pills; but they failed to act. There was no history of any similar attack or of any abdominal trouble. On examination his abdomen was found to be slightly distended and could be readily examined, causing him very little pain. Nothing abnormal could be detected by manipulation. The rectum was loaded with fæces. The pulse was 82 per minute and fairly full, and the temperature 100·6° F. The tongue was slightly furred. He was ordered an enema, which evacuated a large, constipated, but otherwise normal stool. An hour and half later he was noticed to be collapsed, with cold, clammy, extremities, and radial pulse scarcely perceptible. He died eight hours after admission. The temperature rose to 104° just before death. Two drachms of urine had been passed just before death, containing about a quarter albumen, granular and hyaline casts, a few red blood corpuscles, but no sugar. At the necropsy the peritoneum covering the pancreas was found to be glued with recent lymph to the posterior surface of the stomach. The pancreas itself was much swollen, and hemorrhages were to be seen, being most numerous in the tail. The stomach and duodenum were healthy. The remaining organs were healthy, except for a cloudy swelling of the kidneys. There was no fat necrosis. Microscopic examination of the pancreas showed considerable disintegration, with total destruction in parts of the structure of the organ. Numerous hemorrhages were to be seen as well as clumps of crystals of hæmatoidin. (The Lancet, October 20, 1894, p. 914.)

APPENDICITIS.

J. W. White (reprint from the *Therapeutic Gazette*), in an address delivered before the Surgical Section of the College of Physicians of Philadelphia, reported 17 cases of appendicitis, and in his comments on these expressed the following views:—
 (1) The great frequency of this affection is due to the fact that the appendix is a functionless structure of low vitality, removed from the direct fæcal current; it has a scanty mesentery so attached to both cæcum and ileum that it is easily stretched or twisted when these portions of intestine become

distended ; it is supplied by a single blood vessel, the calibre of which is seriously interfered with or altogether occluded by anything which causes dragging upon the mesentery. Moreover, there is almost always present a micro-organism—the bacterium coli commune—capable of great virulence when there is constriction of the appendix or lesions of its mucous or other coats. (2) The symptoms in a case of mild catarrhal appendicitis cannot at present with any certainty be distinguished from those marking the onset of a case of the gravest type. (3) It remains to be determined by future experience whether or not operative treatment in every case of appendicitis, as soon as the diagnosis is made, would be attended with a lower mortality than expectant treatment until definite and severe symptoms are present. At present operative interference is indicated in every case in which the onset is sudden and the symptoms decidedly acute and severe, and in every mild case in which the symptoms are unrelieved at the end of 48 hours, or if at that time they are getting worse. (4) It is still doubtful whether cases seen from the third to the sixth day, which present indications of commencing circumscription of the disease by adhesions, and which tend to the formation of localised suppuration, will do better with immediate operation with the risk of infecting the general peritoneal cavity, or with later operation when the circumscribing wall is stronger and less likely to be broken through. An operation is certainly indicated, the author holds, whenever a firm, slowly forming, and well-defined mass is to be felt in the right iliac fossa, or, on the other hand, when a sudden increase in the sharpness and diffusion of the pain points to perforation of the appendix or breaking down of the limiting adhesions. (5) Operative interference offers some hope of success in the beginning of general suppurative peritonitis, but is useless in the presence of general peritonitis with septic paresis of the intestines. (6) Several attacks of recurrent appendicitis of a mild type may be followed by complete and permanent recovery, but it is at present impossible to distinguish these cases from those in which the appendicitis does not tend to spontaneous cure. Operation is indicated when the attacks are very frequent. (7) Chronic relapsing appendicitis is characterised by the persistence of local symptoms during the intervals and by more or less failure of the general health. It usually indicates operation. (Epitome of the British Medical Journal, February 9, 1895, p. 22.)

CARCINOMA OF THE INTESTINE.

After relating a very interesting case of carcinoma of the splenic flexure of the colon, Dr. James Ritchie makes the following general remarks:—Primary cancer of the intestines is.

most common at orifices and angles ; in this case it was an angle—the splenic flexure—but one of the less frequent seats. There is a difference amongst authorities as to the kind of cancer which is most common. Some say scirrhus, but the majority place columnar epithelioma first in the order of frequency. This case seemed to be one of columnar epithelioma with scirrhus change secondarily. In this, as in other cases of chronic obstruction low down in the intestine, symptoms are usually late in appearing. The discovery of a tumour on palpation is in some cases sufficient, along with these symptoms, to establish a diagnosis ; but when the splenic flexure is the seat, the tumour being under cover of the ribs, as in this case, is not likely to be discovered, even after the most careful exploration. Peristalsis visible through the abdominal wall is a very important evidence of obstruction. Hilton Fagge stated that it is rare in obstruction of the large intestine. As to the seat of lesion in chronic obstruction, the amount of fluid which can be injected per rectum may give some indication, but it is not an absolute guide ; because fluid may pass upward through a strictured portion of bowel, and the anatomical arrangements of the elements of stricture may prevent its return. Dr. Ritchie did not remember of having seen any case of chronic obstruction having spasm of the bowel below the seat of stricture, but in acute obstruction this is sometimes present and prevents the introduction even of small quantities of fluid. As to the ballooning of the rectum, this is sometimes spoken of as evidence of obstruction at the upper part of the rectum or in the sigmoid flexure. May it not be only a late symptom which only occurs after distension of the bowel above the seat of stricture, and that it is produced mechanically by the dragging upwards of the rectum by the distended large intestine ? What is the cause of the dilatation or distension of the bowel above the seat of stricture ? Partly the accumulation of the contents of the bowel, and of flatus from their decomposition, but doubtless also partly a paretic condition of the wall of the bowel from septic absorption. In these chronic cases of obstruction the constitutional symptoms in the later stages are those of septic absorption. In cases of chronic obstruction, what is the best course to pursue in order to obtain motion of the bowels ? In the production of the obstruction there are two factors—the new growth and spasm. There are on record cases of complete obstruction in which post-mortem examination showed that the lumen of the bowel at the seat of stricture permitted the passage of the finger, and it is within the experience of most of us that after colotomy for the relief of obstruction apparently complete, motions have after a time passed regularly per anum. The causes of spasm are probably

twofold—viz., local irritation from the new growth, and reflex irritation accompanying an increase of peristalsis. Anything which will increase peristalsis, such as purgatives, should be avoided, and those measures which tend to diminish it should be adopted, viz., rest, small quantities of those foods which leave little waste material; and as medicines, antispasmodics, hyoscyamus, morphine, and atropine, also intestinal antiseptics; later, after the spasm has subsided, if no motion takes place naturally, a copious enema may be given. (Edinburgh Medical Journal, March, 1895, p. 781.)

CHOLERA INFANTUM.—Rational Treatment of.

There is a certain philosophy in therapeutics which I would frame in the three following rules:—First, remove if possible the disturbing causes; second, treat symptoms which *per se* are liable to endanger the life of the patient; and third, sustain vitality. So far as I knew, the best antiseptic which has also a strong tendency to reduce local inflammation) was peroxide of hydrogen (medicinal) until hydrozone was used by me. Hydrozone being twice as strong as Marchand's peroxide of hydrogen, the latter drug is preferred. This remedy can be administered internally as well as externally. I add a tablespoonful of hydrozone to a pint of water for washing out the stomach. The vomiting ceases after the first washing as a rule. If necessary, this procedure can be repeated. If the vital power of the little patient is not too low it can produce no harm. But in every case, no matter how far advanced, I do not omit an irrigation of the bowels, for which purpose I use a soft rubber catheter attached to a common bulb syringe. The catheter is introduced as high in the colon as possible. It is unnecessary to say that the water must first be sterilised. I use cold water, and add to each quart about two ounces of hydrozone. The improvement after the first or second irrigation is marked. If necessary, these irrigations can be repeated every two hours. Among other remedies there are only two to be employed, morphine and strychnine. Both ought to be administered hypodermically. Their indication is too well known and they are about all we need. No antipyretics should be given. If the fever is very high and if the irrigation of the bowels does not reduce it, the whole body should be washed with alcohol. The diet for the next twenty-four hours should be very light indeed. (Dr. Gustavus Blech, New York Medical Journal, March 2 1895, p. 271.)

CONSTIPATION, HABITUAL.

Before the New York County Medical Association, November 19 1894. Dr. Henry Illoway read the paper. Constipation was

becoming more and more common, and was tolerated by persons who claimed to be in good health in other respects. It was a relative term, but was applicable, the author thought, to all cases where there was not one free passage in two days. Acute and chronic forms existed, but the author considered on this occasion only the latter. These were divided into : (a) constipation depending directly upon a well-defined morbid process, such as cicatricial narrowing, cancer, &c., or secondary to disease in other organs ; (b) constipation depending upon inaction of the bowel. The author considered briefly the longitudinal and circular motion of the gut, the several sources of nerve supply, and the influence of pathological conditions in some other organs, as the heart and spinal cord, in producing constipation. He did not think catarrh a cause of chronic constipation, and if cases of colic were excluded it was questionable whether there was such a condition as entero spasm. *Causation.*—One frequent cause of constipation was neglect to answer promptly the call of nature, whereby tolerance was developed on the part of the mucous membrane and terminal nerve-filaments. A second important cause was use of foods not containing sufficient residual matter. Our diet was composed too much of starches, sugar, fats, and meat. A third cause was the habit people were acquiring of trying to fill their heads (by reading) while emptying their bowels. A fourth was relaxation of the abdominal muscles brought on by absence of physiological exercise and deficient oxidation. The author did not lay much stress on the habit of purgative taking, although when carried to excess this might act like too much and too coarse residual matter, causing over-excitation. Protracted constipation led to dilatation of the gut, the colon having been found of a circumference even of fifteen inches. In old people scybalæ were liable to form. The existence of fistulæ led the patient to avoid passages, and thus tended to aggravate the constipation. *Prognosis and Treatment.*—Recognition of the cause was of first importance in outlining the treatment and pronouncing a prognosis. Each case had to be treated upon its individuality. In some a permanent cure could be expected ; in others, only temporary relief. Where constipation depended upon disease of the heart, lungs, liver, or anatomical abnormalities, special measures would be called for. To overcome an atonic condition of the muscular structure of the intestine and to stimulate the nerves use calabar bean ; nux vomica, arsenic, bella-donna, hyoscyamus, and stramonium were sometimes indicated, but otherwise would prove positively injurious. Use belladonna for venous stasis. The author had not had success from very small doses of podophyllum, for which claims had been made in France. Other measures were mechanical, dietary, massage,

and electricity. Walking, riding, and rowing were valuable, especially walking. Oxygen stimulated peristalsis. Riding was best for shaking up the bowels, for congestion of the liver, and for getting rid of and preventing the formation of gas. Hydrotherapy was useful, including injection of water at about 75° F. In some of the more obstinate cases use hot water and cold water alternately. Massage was indicated in all cases of atonicity and for the dispersion of residues. It was practised upon the naked belly, with unoiled hands. Faradic electricity was more effectual than galvanic over the abdomen, while the latter was more effectual within the rectum. The author did not approve of dilatation of the sphincter in the treatment of constipation unless this were associated with fistula. Incontinence of fæces which might follow was a most horrible condition. (Medical Record, December 1, 1894, p. 697.)

DYSENTERY.—Treatment by Cinnamon.

Surgeon-Major S. T. Avetoon, of the 1st. Baluch Battalion, L.I., sends the following communication to *The Lancet*:—I wish to bring to the notice of the profession a new treatment for acute dysentery. It is not original, but was obtained from a medical work in Persian. This is what the book stated (I translate):—"Treatment for acute dysentery: Reduce cinnamon bark to a fine powder, take one and a half drachms, mix it with a little 'mullai' (the cream which gathers on the top of boiled milk after it is allowed to settle and cool), and administer in the morning on an empty stomach. The patient will be cured." I have made a slight alteration in the above. The powdered cinnamon is given in drachm doses only, mixed with a few drops of water and made into a ball, which is given to the patient to eat, washed down by a mouthful or two of water. This quantity is repeated again in the evening, and so on, morning and evening, until a cure is effected. It is a little over two years since I started this method of treatment, and have cured about thirty cases of the disease. Often patients have been cured by only one or two doses of the drug, while my worst case was cured after five doses only, but a sixth was given to make quite sure. This method of treatment is vastly superior to the ordinary ipecacuanha treatment in that the medicine is pleasant to take and causes no nausea or vomiting, and acts, if anything, quicker and better than ipecacuanha. If the drug were given in drachm and a half doses as recommended in the book, most probably cures would be effected more quickly, but my method has been quite quick enough. The earlier the treatment is begun the quicker the cure. (The Lancet, March 2, 1895, p. 567.)

GASTRIC ULCER, CHRONIC.—Treatment by Papain.

Dr. Guthrie Rankin (Warwick), after recording 10 cases treated by this method, makes the following general remarks:—The symptoms in these cases were so characteristic that it can hardly be doubted that in all of them the pathological condition was one of ulceration of the mucous membrane. The results, moreover, of treatment by papain, iron, and cannabis indica are so striking as to make it probable that in such a combination we have a powerful and useful weapon with which to combat a very intractable disease, and one which, perhaps more than most others, impairs the usefulness of the unfortunate victim, and renders his or her life a burden. It would seem doubtful whether many cases of so-called irritative dyspepsia may not in reality be due to this definite lesion of the mucous membrane in a latent condition. Hæmatemesis is not necessarily present in every case of even acknowledged gastric ulcer, and in its absence it must always be a matter of difficulty to decide whether the train of symptoms owes its cause to a simple catarrh or to organic change in the substance of the stomach wall. The occurrence of hemorrhage clinches the diagnosis; but where remedies, useful in cases about which by reason of the hæmatemesis there can be no doubt, give equally good results in allied cases which fall short of the confirmatory evidence afforded by the bleeding, we may assume that such cases may owe their symptoms either to an early stage of the same condition, or to an accomplished lesion of the surface so chronic and indurated as to prevent actual loss of blood. By some observers the persistence of pain in patients who have admittedly suffered from gastric ulcer has been ascribed to imperfect movement of the stomach walls, consequent upon the interference of the resulting cicatrix. The plan of treatment has consisted in the exhibition of a mixture of iron, papain, and cannabis indica, generally in pill form, and with varying quantities of each of the ingredients. As the large proportion of such ulcerations occur in anæmic patients the *raison d'être* of the iron is manifest. It may be that in some cases iron is not indicated at all by the existence of any appreciable anæmia; but even then it is probable that the blood is impoverished to some degree, and that the hæmatinic properties of the drug not only restore this depreciation of quality, but also, in a secondary way, promote the healing process at the site of lesion. The cannabis indica is useful as a sedative to the stomach walls, as a controller of its muscular action, and as a prop to its nerve-supply, while it is also fully recognised as a direct promoter of appetite. Lastly, papain, which is the most important member of the trio, probably has a complex effect on the curative process. It is well known that when a solution of papain is

painted over a fissured or ulcerated tongue it rapidly provokes cicatrisation. The drug is also of value as a speedy solvent of dead tissue, and to some extent it is credited with antiseptic and tonic properties. Its great use, however, medicinally has hitherto been as a digestive ferment, and its activity in this respect would seem to exceed that of pepsin, pancreatin, or any other known agent. If all these powers of papain be admitted it is easy to conceive a reasonable hypothesis to explain the happy results afforded by it in cases of gastric ulcer, particularly when it is combined with other drugs such as those indicated, which by their collateral effect assist and intensify its action. (The Lancet, February 9, 1895, p. 333.)

JAUNDICE, MALIGNANT; IN A CHILD TWO YEARS OF AGE.

The following case is reported by Dr. Donkin, under whose care it occurred in the East London Hospital for Children:—A girl two years of age was admitted into the East London Hospital for Children on November 22, 1894, with well-marked jaundice of skin and conjunctivæ. She was said to have been always weakly and to have had pneumonia a year previously, but no other definite illness. Her family history was good. Her illness began three weeks before admission with a "cold." The child had a cough and was constipated and sleepy; the appetite failed, but there was no coryza. Jaundice was noticed two weeks before admission; the motions were white and the urine was of deep colour, staining linen. She vomited four days before admission and was restless at night, throwing herself about. On admission jaundice was found to be well marked, and the child appeared to be very ill and rather restless. The lips were of good colour. There was no cough and the temperature was normal. Nothing abnormal was revealed by physical examination of the heart and lungs. The liver was felt one finger's breadth below the costal margin, somewhat hard and smooth. The upper limit of dulness was perhaps a little lowered. No other abnormality could be detected anywhere. She passed a fairly quiet night on the 22nd, though she was somewhat restless. About ten o'clock on the morning of the 23rd she became very restless, and soon after grew apparently unconscious of her surroundings. Delirium set in, soon developing a maniacal character, the child throwing herself about in bed and biting her clothes and hands or anything she could reach with her mouth. The pupils were equal and rather contracted, but reacted to light. The pulse was 120, irregular; the temperature was still normal. The urine and fæces were passed unconsciously. The jaundice had increased in intensity. The child was very thirsty. Petechiæ now appeared on the front of the legs. The child cried very little, but moaned when

disturbed; the tongue was covered with a dirty white fur. The patient remained maniacal all day, but during the evening became quieter and drowsy; the pupils were dilated and sluggish at 10 p.m.; the temperature was 100° F.; the pulse was 140 regular. During the night coma gradually set in, the petechiæ became more numerous, and the jaundice more intense. About 5 a.m. on the 24th the child vomited a quantity of blood and died shortly afterwards. Although a post-mortem examination could not be obtained in this case, and there was no opportunity of examining the urine for leucin and tyrosin, the diagnosis of malignant jaundice or "acute yellow atrophy" seems amply justified. The case was in all respects clinically similar to two others I have seen in children aged two years and a half and six years respectively, where post-mortem examination proved complete destruction of the cellular liver structure. These cases I have reported elsewhere in some detail. In none of these cases was there evidence during life of any considerable diminution of the liver, and in at least one of those examined after death the liver was not below the average in weight. A practical lesson to be learnt from such cases is to be very guarded in the prognosis of all so-called and apparent cases of "simple" or "congestive" or "catarrhal" jaundice in children when the jaundice does not abate within a week, and still more when it increases. (The Lancet, January 5, 1895, p. 28.)

PERITONEAL ADHESIONS.

Nicaise (*Rev. de Chir.*, August, 1894) states that the use of antiseptic methods and the consequent development of antiseptic surgery have made surgeons better acquainted with peritoneal adhesions, and have led to their successful treatment by operation. These adhesions may give trouble by disturbing the functions of implicated organs, and by exciting pain. The painful sensations vary in character and intensity in different cases. They may be caused by displacement of the organs to which the adhesive bands are attached, or by constriction of the intestinal canal. The pains in the latter condition are often very severe, and of a similar nature to those of hepatic and renal colic. The diagnosis of peritoneal adhesions is often very difficult; in some cases their existence can be assumed only by a process of exclusion, whilst in others certainty as to their presence or absence cannot be attained except by an exploratory laparotomy. The author is of opinion, however, that a diagnosis may be made in many cases by close inquiry concerning such details as the previous occurrence of abdominal inflammation; the seat of the pain, and the relation of such seat to that of old inflammatory attacks; the time when the pain comes on with regard to the taking of food; and, in females, to the periods of menstruation.

As many peritoneal adhesions become longer and thinner, and have a tendency to disappear, there should be no hurry in having recourse to operative treatment. When, however, they cause very severe and frequently renewed pain, although the compression of an abdominal belt or bandage or massage may give relief, the only method of dealing effectually with such trouble is the performance of laparotomy and the destruction of the adhesions. The cure that may be thus effected will be complete and permanent; but it is pointed out, as laparotomy is a serious operation unless practised under very strict antiseptic conditions, it ought not to be applied in cases of peritoneal adhesions unless these cause intolerable pain. (Epitome of the British Medical Journal, October 20, 1894, p. 61.)

PERITONITIS, GENERAL, TREATED MEDICALLY.

Observations on.

The object of this paper is to draw attention to the curability of even the severest cases of peritonitis by medical means. It is especially useful to consider the subject from the medical standpoint, considering the great advances of modern abdominal surgery, which is ready to open the abdomen, whatever may be the cause of the peritonitis: the modern surgeon simply cures without having realised any of the indications on which his cure depends. Whenever a discussion on the subject takes place, it is shown that spontaneous cure often occurs. A short examination at once shows whether the condition is local or general, acute or chronic, and affects the peritoneum, covering either one of the abdominal viscera or uro-genital organs, in connection with the gonococcus or streptococcus, or the intestines, which latter is most frequently the case. The bacillus coli is, in a state of health, perfectly innocent and even useful; on becoming pathogenic it gives rise to fevers, rigours, inflammation, and suppuration, septicity, putridity, or perforation. It penetrates the walls of the distended, thinned, and paralysed intestines, and invades their peritoneal surface. It readily attacks the debilitated organism if the liver is not able to resume its depurative, and the kidney its eliminative, function. and the phagocytes are not present in number and power. Lastly, by intestinal fermentation, ptomaines are produced. A mere trifling accident, such as a shock or exposure to cold, will set up peritonitis. A stomach engaged in digesting an irreproachable meal is exposed to a chill, indigestion and colic are at once set up, followed by meteorism, &c.; the next stage is enteritis, and then peritonitis, unless a complete evacuation is obtained and warmth applied. Each variety of peritonitis must be treated directly according to its origin, in which the surgeon or physician will play his respective part. The author

successfully treated a series of six cases, which may be briefly described as simple local peritonitis, afterwards becoming general ; general peritonitis ; a general suppurative peritonitis, involving the diaphragm, right pleural cavity, and the base of the right lung, in which a cavity formed and large quantities of pus were expectorated ; a local suppurating peritonitis, due to intestinal perforation, which was first evacuated with an aspirator, and then, later on, ruptured into the intestine ; a case of chronic, subsequently becoming acute, tubercular peritonitis, which was aspirated ; and, lastly, a case of chronic peritonitis two years after an attack of scarlet fever. In the third case he especially draws attention to the danger to the patient arising from surgical interference, which would have destroyed adhesions, the only chance of recovery the patient had. (Prof. Revilloid (Geneva), *Revue Médicale de la Suisse Romande*, October 20, 1894. *The Practitioner*, February 1895, p. 166.)

PERITYPHLITIS.—Operative Treatment of.

At the Hunterian Society on January 9, 1895, Mr. Symonds read a paper entitled "The Operative Treatment of Perityphlitis." The paper was founded upon 23 cases which had come under his care for surgical treatment. Questions of surgical import only were dealt with, and the important question—When should operation be undertaken? Mr. Symonds stated that the cases were necessarily divided into two groups:—(1) Those in which operation had been performed in the quiescent stage for relapsing typhlitis, and (2) those in the acute suppurating condition. The first group included six cases. The following are briefly the notes of each:—Case A is reported in full in the *Clinical Society's Transactions* for 1885. The patient had had several attacks of colic during the six months before the removal by operation of a calculus from a cavity outside the appendix. The peritoneal cavity was not opened. Mr. Symonds now exhibited the calculus removed in July, 1883, and stated his belief that this was the first case of perityphlitis operated upon in the quiescent stage. The calculus was composed of calcium phosphate and faecal matter, and the question was whether such a calculus could have formed in six months. In two other of the six cases a calculus was also found on operation. In one, Case B, there had been symptoms of colic for two years. The calculus rested in a cavity outside the appendix and presented a laminated appearance similar to that of Case A. In Case C a calculus of similar size and form was removed from a cavity in the iliac fossa. In this case the cæcum was adherent to the abdominal walls, and a faecal fistula resulted from sloughing of the intestinal walls and still persisted. The patient had suffered from typhoid fever one year and enteritis three months before admission.

Before operation there was a small area of exquisite tenderness in the lower part of the right rectus muscle. The symptoms in these three cases were of three, six, and twenty-four months' duration respectively from the first attack. Case D, a female, had had two attacks, the first twelve and the second two months before admission, with an ill-defined right iliac swelling and pain on walking. The abdomen was opened, the appendix removed, and perfect recovery resulted. Case E, a girl aged eight, had had a first attack five years ago, when three years of age. With quiet and care she had no second attack till 1893. The patient came under Mr. Symonds' care during a third attack, when a tumour could be felt at the brim of the pelvis. The appendix at the operation was found to be hanging down into the pelvis and adherent to the rectum. It was removed, and the patient did well. Case F was a student who had had two attacks and in whom at operation a mass of white lymph was found adherent to the iliacus muscle and to two coils of ileum. The appendix and omentum were removed, and recovery resulted. Thus in these six cases four had had two attacks, one had had great pain and inability to work after a first attack, and in one the attacks had been frequent. Mr. Symonds would ask the questions—Ought we to operate after one attack even if severe? Ought we to advise operation after a second attack? And, thirdly, if in suppurating cases the appendix could not be found, should the peritoneal cavity be opened if necessary in order to find and remove the appendix? He next detailed the method of closure of the divided appendix. Operation had been performed in 17 acute cases. He stated it was important to estimate the initial severity. He considered that if the attack was not very severe or very sudden the prognosis was good so long as the swelling continued firm. Many cases recovered from the first and from the second attack. Mr. Symonds drew attention to the fact that the quantity of pus was in no way proportionate to the amount of swelling, and narrated one of his cases where the swelling was enormous, reaching above the umbilicus and contained only one drachm of foul pus. The usual symptoms were sudden onset of pain, with or without sickness, or diarrhoea, with or without pain, with or without sickness, and with subsequent development of tumour. Case G, a female, experienced sudden pain in the right hypochondriac and inguinal regions one month after confinement. The temperature varied between 99° and 102° F. On the tenth day there was a well-defined swelling in the right inguinal region with hectic symptoms. An incision yielded one ounce of pus, and an entire detached appendix, contained in a large cavity. Mr. Symonds said that 5 out of the 23 cases presented hectic temperature with anorexia and gradual development of the swelling. Of those

5 cases all but one recovered, and in that case the abscess ruptured on the thirteenth day. This patient was at first not very acutely ill, but was suddenly taken with severe pain and diarrhœa and collapse. Mr. Symonds advised operation where a tumour existed which continued to increase in spite of rest, and where the temperature rose and the tumour continued to increase in size. In another group of cases there might be an abscess in an abnormal position. The notes were read of a case where, with violent abdominal pain and tenderness, there appeared on the fifth day a small tender swelling in the cæcal region, which was demonstrated by operation to be an abscess between the ileum and cæcum. He next referred to a fourth group of cases where, with abdominal distension and septic pyrexia, no tumour was palpable. He pointed out the great value of the presence of slight œdema over the loin as an indication of the presence of deep-seated suppuration. In two cases a large abscess had been completely masked by the abdominal tympanites. He therefore advised operation where the symptoms were severe and persisted if the abdomen was tympanitic. As to the justifiability of operation during the early stages of the disease. Mr. Symonds pointed out that in two of his cases operation had been performed 22 and 29 hours after the onset of symptoms. In one purulent peritonitis was found and death resulted. The other was admitted into hospital in a state of collapse, and operation revealed a localised abscess, which was drained with good result. Mr. Symonds considered that the danger of operation was much increased by the removal of the appendix when an abscess existed. In none of his cases of abscess was the appendix searched for. (*The Lancet*, January 26, 1895, p. 221.)

PYLORECTOMY AND PYLOROPLASTY.

Very interesting comparative statistics have lately been published by Mintz on this subject. He has collected 22 cases of Loreta's operation, with 13 recoveries, *i.e.*, 59 per cent. ; whereas 29 cases of pyloroplasty, according to Henricke-Mikulicz, are mentioned with 22 recoveries, *i.e.*, 82·7 per cent. If stenosis is complicated by ulceration, pyloroplasty is not indicated. We should then run the risks of a recurrence during further cicatrization of the ulcer. Gastro-enterostomy should be resorted to under these conditions, which, according to Mintz, gives a percentage of 71·9 of recoveries. Pylorectomy should never be done for malignant stricture. (Dr. Kammerer, *New York Medical Record*, February 2, 1895, p. 139.)

RECTUM, RESECTION OF THE.—A New Method.

Before the Chirurgical Society of Paris, Dr. Routier described a method of resecting the rectum as devised by Moulonguet, a

modification of Kraske's operation. The first step is the same as in Kraske's operation; the sphincter is then dissected out, and even though the lower portion of the rectum is found healthy, it is cut away instead of being preserved, as in Kraske's operation. The sphincter, after having been dissected out, is lined by the upper portion of the rectum, which is pulled down for this purpose and sutured to the edges of the wound at the anus. The perineosacral wound is then sewn up, with a drain in the lower portion. In Dr. Routier's estimation the usefulness of the operation is rather limited, especially to cases in which the cancer is not situated high up, and in cases in which the sphincter is intact. (Medical Record, December 8, 1894, p. 724.)

SUMMER DIARRHŒA AND THE STERILISATION OF MILK.

A. Baginsky (*Berl. klin. Woch.*, Nos. 43 and 44, 1894) points out that warm weather may operate in at least three ways:—(1) At high temperatures the growth of bacteria, in themselves harmless, may be so much encouraged that their very numbers and bulk, so to say, may make them injurious or may render the amount of their products so large that they produce symptoms of intestinal irritation. Examples of such products are lactic, formic, acetic, and butyric acids. Changes of this character may begin in the milk before ingestion and continue within the intestinal canal. (2) The microbes, the growth of which is stimulated by the warm weather, may be in themselves poisonous or they may produce soluble poisons in such quantity that even a small quantity of the milk containing them may produce poisonous symptoms. (3) The milk itself may be germ free, but the child may take into its mouth in other ways, from the air or the articles which it uses, so large a number of microbes that the milk becomes affected with these special fermentations after ingestion. Sterilisation will be the most effectual against conditions coming within the category (1), of little effect against (2), and of none against (3). He contends that the typical summer diarrhœa, which produces so high a mortality among the children of great towns, is due to the absorption from the intestinal canal of bodies produced by the action of microbes on the milk before ingestion or upon the unassimilated remnants in the intestinal canal. The pathology of the summer diarrhœa of infants would thus be analogous to that of Asiatic cholera. In reality prolonged "sterilisation" does no more to free milk from microbes than boiling for five to ten minutes. An important point is that the heating should be followed by rapid cooling, and that the milk should afterwards be kept in a cool place. (Epitome of the British Medical Journal, November 17, 1894, p. 77.)

ACUTE TONSILLITIS.

Massei (*Rif. Med.*, January 21 and 22, 1895) discusses the clinical differences between the various forms of membranous angina. In the first place if you find the patient cannot open the mouth you may almost invariably exclude diphtheria, and suspect one of the inflammatory non-diphtheritic forms of angina. If the affection is a single manifestation, without any erythematous or papular eruption, suspect diphtheria; if on the second, third, or fourth day of scarlet fever, the angina is probably coccogenic and not bacillary. In presence of a yellowish white, easily separable membrane affecting chiefly the tonsil, one should suspect staphylococci alone or in conjunction with streptococci. If the exudation is thicker, more compact, greyish white, and developed not only on the tonsil but on the uvula as well, or if the membrane is surrounded by a well-marked hyperæmic zone, it is probably of streptococcal origin. If the exudation is very white, compact, and dense, it is probably due to pneumococci; if the pseudomembrane has the character of a compact, fixed, dense tissue, more or less thick, it is most likely due to staphylococci alone. These are, of course, only rough and ready clinical diagnoses, where bacteriological examination is not obtainable. Menstruation, dyspepsia, &c., and other so-called causes of tonsillitis, only act as way-openers for the ever ready microbe. In the treatment of the coccogenic forms Massei believes strongly in sublimate gargles (1-1000), ice, cocaine, and Behring's serum for the doubtfully diphtheritic cases. (*Epitome of the British Medical Journal*, March 2, 1895, p. 33.)

TUBERCULOSIS OF THE PHARYNX.—Acute Miliary.

Kiaer (*Ugeskrift for Læge*, No. 52, 1894) reports the following cases:—(1) A girl, aged 6, had, six weeks previous to the observation, had an attack of double pneumonia, since which she had suffered from dyspnœa. With the exception of a bronchial character of the inspiration, no abnormality was found in the chest. The pharyngeal and laryngeal mucous membranes were swollen and injected, and the lower surfaces of the vocal cords bulged strongly forwards, causing considerable narrowing of the glottis. Tracheotomy was performed, and later intubation, which relieved the symptoms for a time. About a month after the first observation, the child complained of pain and difficulty in swallowing, and the redness and injection of the pharyngeal mucous membrane previously noticed were now more marked, and the membrane was covered with miliary tubercles. The symptoms advanced rapidly; the uvula and pillars of the fauces became hard and brawny;

the patient developed rhinitis, with complete obstruction of the nose, and the glands of the neck were greatly enlarged. The child died about four months after the first appearance of the symptoms. Besides the local signs of extensive ulceration, both lungs were covered with miliary tubercles, and on section presented numerous caseous peribronchial infiltrations. The bronchial and cervical glands were caseous. (2) A man, aged 55, had always been in good health until three months previous to observation, when he noticed pain on swallowing. He had been nursing and sharing the same room with a son, who a year previously had died of pulmonary and laryngeal phthisis. The pharyngeal mucous membrane was red and swollen, and on the pillars, uvula, and naso-pharynx were numerous miliary, but also confluent, whitish infiltrations, ulcerating in part. On palpation the soft palate was hard and infiltrated. The larynx was normal, except for a slight diffuse redness and swelling. There were signs of commencing consolidation of the right apex. Before death, about six months after the commencement of the symptoms, the patient had regurgitation of fluid from the nose and extreme dysphagia, which necessitated feeding by the œsophageal tube. Post-mortem were found extensive ulcerations of the pharynx, larynx, and trachea; the lungs were riddled with tubercles, varying in size from a pin's head to a pea; there were no signs of these breaking down. (3) A man, aged 23, had noticed pain on swallowing, two months previous to observation; he had wasted and been sweating at night, but there had been no cough. The local signs found on inspection were somewhat similar to those in the previous patient; there was extensive induration with scattered ulcerations of the pharyngeal mucous membrane. The larynx was normal. There were slight signs of commencing consolidation of the left apex, and a few crepitations were also heard under the right scapular spine. This case also progressed rapidly, and the patient died five months after the commencement of his illness. A necropsy was not allowed. Tuberculosis of the pharynx, though rare, is more common than that of the œsophagus and stomach. It is very rare in children, being most common in adult males. In none of the cases quoted above was there any evidence of the ulceration having begun on the sides of the pharynx, and from thence spread to the posterior wall and the soft palate, which is said by Mackenzie to be the usual course. The author thinks there is strong evidence in favour of all three cases being primary; the rapid and extensive local changes, compared with the comparatively recent ones found in the lungs, point to this. In the two adult cases the very first symptoms were those of dysphagia, and in the child the mucous membranes of both pharynx and larynx

appeared to be simultaneously affected, although in this case the dysphagia was never so extreme as in the others. (Epitome of the British Medical Journal, February 9, 1895, p. 21.)

TUBERCULOUS PERITONITIS WITH ASCITES.—

Operative Treatment of.

Dr. G. Frees (*Deutsche medizinische Wochenschrift*, November 8, 1894) records eighteen cases. He insists on the importance of histological examination before cases are admitted to tables of statistics. In two cases to which he refers ascites was present, and nodules, indistinguishable to the naked eye from tubercles, were present in the peritoneum; but by microscopic examination the lesions were found to be small fibromata in one case, and, in the other, primary cancer of the peritoneum. According to König, all cases of tuberculous peritonitis—whether accompanied by ascites, or of the adhesive or dry, or, again, of the suppurative form—are benefited by operation. Aldibert reckoned 34 per cent. of recoveries in the ascitic form, and 80 per cent. in the adhesive variety. Of the latter group 50 per cent. were permanent. On the other hand, in Germany the ascitic form is regarded as specially suited for operative treatment. The fact that abdominal section alone seems in some cases to effect a cure has been established, though it is puzzling to understand the result. In a case related by Bumm it was found on doing a second laparotomy that the tubercles were surrounded by an additional zone of small-celled infiltration, and it was surmised that the tubercles were destroyed by cicatrization of this inflammatory envelope. Frees's eighteen cases were all accompanied by ascites, and performed on females, of ages varying from fifteen to sixty years. Of these cases five were definitely successful, remaining well at the end of five, four, three, two, and one years respectively. In another case the Fallopian tubes were removed, and three years later the general health was good, but two tumours as large as walnuts were felt attached to the uterus. In none of the cases did the operation appear to have an ill effect, but in twelve the downward progress of the disease was unchecked. (The Practitioner, January, 1895, p. 83.)

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

BRIGHT'S DISEASE WITHOUT ALBUMINURIA.

Marion (*Arch. Gén. de Méd.*, March, 1895), after referring to the recorded cases, relates three cases of unquestionable nephritis occurring in patients aged 58, 19, and 59 years respectively. In

the first case there never was albuminuria whilst the patient was under observation. In the second case a chlorotic girl was admitted with many of the symptoms of Bright's disease, and yet there was no albuminuria. Two years later she was readmitted, when albumen was present in the urine. In the third case the patient had been under treatment with Bright's disease and albuminuria. Later she was admitted with influenza. The albumen entirely disappeared but the symptoms of Bright's disease persisted. The author draws attention to the fact that the quantity of albumen present may be of little prognostic importance, and he relates an illustrative case. Albuminuria is a feature of secondary importance in Bright's disease; it may occur in health, it may exist in large quantities in cases of Bright's disease with few symptoms, and it may be absent in uræmia. As Dieulafoy says, the important thing in renal disease is not so much what passes out in the urine as what remains behind in the body. (Epitome of the British Medical Journal, March 30, 1895, p. 49.)

CASTRATION, EFFECTS OF DOUBLE (White's Operation), UPON THE ENLARGED PROSTATE.

Mr. E. Hurry Fenwick, after detailing nine cases, draws the following conclusions:—There is no doubt that slow shrinkage of the prostatic tissue in many of the forms of senile enlarged prostate ensues upon double castration. Further experience must, however, decide as to whether every form of prostatic growth is thus affected. It is certain that escape from catheter life after castration depends absolutely upon the health of the vesicle muscle. The grade of the atony, therefore, should be most carefully estimated before any hopes of relief from catheterisation are held out. To promise a confirmed catheter case that orchectomy will do away with the instrument will merely bring discredit on the operation and disappointment to the patient. Even after prostatectomy we are unable to promise such relief if the muscle is hopelessly atonic, and we cannot do so after castration. It is possible that castration by diminishing the microbic infection from the inflamed senile prostate will remove a constant menace to the integrity of the kidneys, for it will control the most prolific source of ascending pyelitis. It appears to me that double castration will prove of value in the following conditions:—In reducing bulky overgrowth of the lateral lobes of the prostate; it may be found that the small, tough, fibrous, median or lateral vesical outgrowths will be better removed by suprapubic prostatectomy. In controlling the distress and danger of an inflamed senile enlarged prostate. In lessening the frequency or difficulty of introducing the catheter in advanced or confirmed catheter life. In avoiding the

mechanical difficulty of crushing a post-prostatic on a post-trigonal stone, by levelling the base of the bladder, thus rendering the operation of litholapaxy feasible in a condition in which before it was impracticable. In reducing chronic cystitis and recurrent phosphatic calculus in cases of confirmed catheter life. (*British Medical Journal*, March 16, 1895, p. 578.)

CATHETER FEVER.

Southam, in a Presidential Address before the Manchester Medical Society, on February 6, 1895, on "Recent Advances in Urinary Surgery," made the following observations on the above subject:—A few years ago a distinguished physician, the late Sir Andrew Clark, directed our attention to the dangers which attend the commencement of "catheter life" in those suffering from retention of urine due to enlargement of the prostate gland, and to the chain of symptoms which so often supervene, he gave the term "catheter fever." It may be produced as the result of the use of a foul or septic catheter, or in consequence of the regurgitation of air into the bladder when the latter has been emptied by forcible compression of the hypogastric region. Another factor which doubtless also comes into play when a bladder, which has been continually distended for a long period, is all at once emptied of its contents, is the sudden removal of pressure from its walls. This is followed by an exudation of mucus often mixed with a little blood, and these mingling with the urine, which is usually already feebly acid or alkaline, help to promote the decomposition of this fluid within the bladder. Catheter fever may generally be warded off if careful antiseptic precautions are taken as regards not only the instruments used, but also the bladder itself. At the commencement of catheter life the bladder should be thoroughly washed out with boracic acid lotion at least once a day, and each time the urine is drawn off a few ounces of the same or some other antiseptic fluid should be injected and left in its interior. By this means the tendency of the urine to decompose within the bladder will be counteracted, and absorption of any toxic products will be prevented. (*Medical Chronicle*, March, 1895, p. 408.)

CHANCRES IN THE SITE OF OLD SORES.— **Recurrence of.**

Mr. Jonathan Hutchinson, in an article entitled "Notes on Chancres" (*Archives of Surgery*, January, 1895), speaks of chancres recurring in the site of old sores without fresh venereal inoculation. He first treats of the theory of herpetic chancres. Herpes on the prepuce and glans recurring frequently is much more common in patients who have had syphilis than in others.

The herpes may follow the non-indurated as well as the hard sore; is usually of short duration, disappearing irrespective of treatment in the course of a week or ten days; it is not benefited by mercury, but may be prevented by the use of arsenic. Some cases do not get well so quickly, and occasionally degenerate into chronic ulcers, very difficult to distinguish from the results of recent infection. The herpes is due to local nervous disturbance in tissues which have been affected by the syphilitic taint. It may follow venereal excitement. In a case mentioned by the author, new sores developed on the penis three years after an attack of syphilis, and apparently without any possibility of recent infection. Some showed definite induration, and the patient was under treatment for two months. Mercury did not act well. On the after-marriage chancre. These occur in cases where there is no evidence of remaining syphilitic taint than the local sore on the genital organ. Sometimes exactly on the site of former chancres, sometimes not so. They never cause enlarged glands, nor are they followed by secondary symptoms, but occasionally prove infective to the wife, and Mr. Hutchinson believes that in all cases in which young wives acquire syphilis from apparently healthy husbands, sores of this kind have intervened. The author thinks that the liberal sexual intercourse often following marriage, usually preceded by a long interval of abstinence, is prone to relight old chancres. He has seen so many under these circumstances that "it is impossible to believe that they are matters merely of coincidence, or that in all the patient is guilty of concealment." As a rule, a man is not likely to expose himself to the risk of contracting fresh disease just on the eve of his marriage. (Coutts' "Surgery," *Medical Chronicle*, March, 1895, p. 439.)

CYSTIC KIDNEYS.

At the Pathological Society, on December 4, 1894, Dr. Pye-Smith showed a case of megalocystic kidneys in a man aged 27 years, who died in Guy's Hospital after only a fortnight's illness. One kidney weighed 51 and the other 48 ounces. The symptoms were those of chronic Bright's disease without dropsy, with hypertrophied left ventricle, increased tension, and retinitis. He compared these cases with the congenital cystic kidneys described by Virchow, and with others contributed to the *Transactions of the Pathological Society* since Dr. Hare's case in the third volume. He argued that clinically they were all cases of Bright's disease of the cirrhotic type, but remarkable for their early origin and slow progress. He also commented on the curious association of these cystic kidneys with cystic degeneration of the liver, pancreas, and brain, and considered

that the different histological processes in the several organs involved caused a great difficulty in supposing that they had any other than an accidental connection. He thought that probably not a few cases of very chronic Bright's disease occurring in children and young adults, not due to scarlet fever on the one hand or to gout or intemperance on the other, might belong to this hypertrophic renal cystic cirrhosis.

Dr. Rolliston said that pathologically there were two classes of cystic kidney—the congenital cases and those that occurred in adults. In the congenital cases the dilatation depended on inflammation taking place about the apices of the papillæ, and the disease could be made out distinctly to progress from the medulla towards the cortex. The cystic kidney in adults, on the other hand, was connected with chronic interstitial nephritis and renal cirrhosis. It commenced in the cortex and progressed towards the papillæ. Two years ago, in conjunction with Dr. Kanthack, he described a case of cystic kidney in a child who died from albuminuria and convulsions, and in whom there was associated cystic disease of the liver. In that case the cysts of the liver appeared to be due to the formation of retention cysts following inflammation around the bile-ducts. They saw appearances which in the first instance might be mistaken for vacuoles in liver cells, but these were really distended bile capillaries which had become invaginated into the liver cells. The cysts occurring coincidentally in the pancreas were probably also retention cysts, but he could offer no explanation of the origin of those which commenced in the brain.

Dr. Alfred Eddowes had made the necropsy of a woman, aged 27, who died suddenly; both kidneys were found to be cystic, and there was a history of severe scarlet fever in childhood.

Dr. Pye-Smith, in reply, said that some of the large cystic kidneys were congenital, while some were cirrhotic; but however they might differ in size, yet functionally the result seemed to be the same in all. He admitted that it was possible that the cysts in the liver were due to retention, but, on the other hand, it was remarkable how very rarely retention cysts were seen in hepatic cirrhosis. (*The Lancet*, December 8, 1894, p. 1347.)

GLEET.—Treatment of.

Southam, in an address on "Recent Advances in Urinary Surgery," says:—"In cases of gleet the urethroscope has demonstrated to us the fact that though this condition is frequently due to a slight or commencing stricture, yet in many instances it is met with before any actual contraction of the

canal has taken place, and under these circumstances it depends upon the presence of localised patches of inflammation, or of superficial erosions involving the mucous membrane of the deep or posterior portion of the urethra. This fact is of great importance in the treatment of this obstinate affection, for it is very essential that all local applications, whether employed in the form of injections, ointments, soluble bougies, &c., should be made far back, viz., to the bulbo-membranous or prostatic part of the canal. In this way, by directing our treatment immediately to the affected portion of the urethra, we not only cure the gleet, but also arrest the inflammatory process, which is the first stage in the formation of a stricture. (*Medical Chronicle*, March, 1895, p. 412.)

GONORRHOËAL PERITONITIS IN THE MALE.

In the majority of cases where the mode of entrance of the poison has been proved by operation or autopsy, an abscess of the prostate, followed by a periprostatic suppuration, has been found as the source of the infection, perhaps, in one or two cases, by continuity, but generally by direct rupture of the abscess into the peritoneal cavity. As a rule, the periprostatitis begins in the connective tissue between the prostate and bladder, the pyogenic bacteria having probably emigrated from the rectum. More rarely the inflammation begins on the sides of the prostate or between that gland and the bladder. The phlegmon thus started, if it fails to open into the bladder, rectum, or perineum, burrows upward, and the pus may infiltrate extensively the retroperitoneal connective tissue, or, pushing the peritoneum upward, eventually burst through it and start a local or general suppurative peritonitis. The symptoms are similar to those of septic peritonitis from any other cause. Collapse at the moment of rupture does not seem to have been one of the phenomena. As a rule, the peritonitis has appeared somewhat late in the course of the disease, generally in the third, fourth, or fifth week. The prognosis, of course, if general peritonitis exists, is absolutely bad. If the general cavity has been shut off by a wall of adherent intestines a localised intraperitoneal abscess may form, which may rupture spontaneously into rectum, bladder, or intestine, or may be opened by the surgeon, as has been done in several cases with favourable results. As regards treatment, immediate laparotomy is indicated as soon as the diagnosis has been made. Delay will be fatal. The operation, if done at an early date, will give the patient a reasonable chance for recovery, and even in cases which appear rather desperate it should be attempted, as it affords the patient his only chance for life, which, even if it be a very slight one, should be accepted. (Dr. A. J. McCosh, *Annals of Surgery*, February, 1895, p. 145.)

HÆMATURIA, PERSISTENT.—Local Treatment by Silver Nitrate.

Experience has taught me that of all chemicals used in genito-urinary work silver nitrate is the most useful. It is an agent of great good, or great evil, as its proper or improper use will quickly demonstrate. No agent is so much abused in its use as this, and no other agent can be made to do so satisfactory work with proper care. One of the first essentials in bladder applications of all kinds is thorough cleansing. It matters little whether mild carbolic or boric-acid solutions or warm water alone are used, the organ must be washed out until the washings run clear, in order that the active medication may have full play in an organ as free from foreign matter as possible. With silver solutions mild strengths should be first used, half a grain to the ounce, from two to four ounces being injected at once, and retained a short time and then withdrawn. The time of retention may be slowly increased with benefit from time to time. This is purely a matter of judgment, to be decided wholly by the tolerance of the patient. The solution is slowly increased in strength up to ten grains to the ounce in some cases. Some cases are very intolerant of strong solutions, hence the necessity for slowly feeling your way grain by grain. If more than ordinary reaction occurs, they should not be continued. As a rule, silver injections should not be used oftener than every three to seven days. (Dr. C. F. Denny, Boston, Medical and Surgical Journal, February 21, 1895, p. 183.)

HYPERTROPHY OF THE PROSTATE.—Bilateral Orchestomy for.

At a meeting of the Alleghany County Medical Society J. D. Thomas (Philadelphia *Med. News*, January 5) reported the case of a man, aged 60, who for ten years had had progressively increasing frequency of micturition, so that in urinating he was obliged to get upon his hands and knees, thus emptying his bladder by drops. The straining resulted in prolapse of the rectum. A catheter had been used, but the pain was so intense that the practice was abandoned. The urine was neutral in reaction, and contained a large amount of pus. There were 2 ounces of residual urine. A soft catheter could be introduced without much difficulty, and on rectal examination both lobes of the prostate were found to be considerably and uniformly enlarged. Bilateral orchectomy was proposed, accepted, and performed. Improvement in urination was perceptible within a few days, and continued subsequently without medicinal treatment. The urine could be retained for from two to six hours by day and for two hours at night. Micturition was attended with little pain. On rectal examina-

tion the size of the prostate gland was found to have appreciably diminished. (Epitome of the British Medical Journal, February 9, 1895, p. 22.)

HYPERTROPHY OF THE PROSTATE TREATED BY CASTRATION.

Dr. J. William White, of Philadelphia, in a paper read on the above subject, before the American Association of Genito-Urinary Surgeons puts forward the following line of argument in favour of the operation :—The prostate, while not embryologically the true homologue of the uterus, was developed from structures quite distinct from those which formed the urinary passages. The structure of the prostate and that of the uterus were strikingly similar. The growth of the organ was in direct relation with the sexual life of the individual ; its overgrowth occurred at a period when the sexual life was fading out, but was usually not extinct. The reproductive life ended sooner in the female than in the male, and accordingly we found fibromyomata appearing earlier in the former than in the latter. The histology of the growths and of their varieties was remarkably alike in the two sexes. The uterine tumours did not appear after the menopause, or, if present, underwent atrophy at that time. After a certain period of life there was no increase in the tendency to enlargement of the prostate, but rather the reverse. In the female, oophorectomy caused a disappearance of these growths and atrophy of the uterus itself. Castration almost certainly had the same effect upon the normal prostate. (New York Medical Journal, November 24, 1894, p. 663.)

HYPERTROPHY, PROSTATIC, TREATED BY CASTRATION.

Lutken (*Deut. med. Woch.*, January 31, 1895) relates the following successful case :—A man, aged 65, had difficulty in micturition for several years past. The catheter had now to be used some seven or eight times a day, and recently this had been accompanied by much pain and occasionally by the passing of some clotted blood. The author felt *per rectum* in the region of the prostate a swelling of the size of a hen's egg. As no improvement occurred, castration was suggested and agreed to. Ten days after the operation the left half of the prostate was smaller. A month later this left half could hardly be felt, and the right half was about the size of a walnut. Four months later no distinct enlargement of the prostate could be ascertained. Immediately after the operation the catheter could be used less frequently, and in ten days' time discarded altogether. Five months after the operation the patient was perfectly well, and

could pass a good-sized stream of water. The author thinks that this operation is preferable to others in use, and even to regular catheterism. No living spermatozoa could be found in the testes, so that this case speaks against the view that the organs must be functionally active to get shrinking after castration. (Epitome of the British Medical Journal, February 23, 1895, p. 307.)

PUERPERAL CONVULSIONS and ALBUMINURIA.

It is generally admitted that many, perhaps most, cases of puerperal convulsions are associated with albuminuria, and that there is some connection between the two ; while in other cases they are not thus associated. As convulsions occur apart from pregnancy, so they may arise from the same causes during, but independently of pregnancy ; as from cerebral or meningeal disease and other conditions. Moreover, true epilepsy may manifest itself for the first time during pregnancy or the puerperal state, and the subject may become a permanent epileptic. Besides, epileptic attacks may occur once in a lifetime from some accidental peripheral irritant. If gastric irritation can give rise to epileptic attacks in a healthy person, we can easily imagine that severe uterine contraction may occasion like attacks in a pregnant woman whose nervous system has undergone the changes, especially increased sensibility, which are so frequently observed during gestation. Such may occur in the absence of albumen in the urine, or albumen may be present in the urine but take no part in the causation of the fits. We may have, then, during pregnancy, convulsions arising from intracranial disease, true epilepsy manifesting itself for the first time in a tainted subject and epileptic attacks appearing once only, called forth by the irritation of the over-sensitive nervous system of the puerperal woman by the contraction of the uterus. These last may justly be called puerperal convulsions. With these classes of convulsions I have nothing to do now except to eliminate them from consideration ; and I come to consider a more severe and grave form—a form which is sudden in its onset, rapid in its progress, and, generally, fatal in its issue. There is another form which should, I think, be separated from the forms I have eliminated and from the one I am about to consider—that is, that form which is met with occasionally in the subjects of chronic Bright's disease. I believe that this is different from that which is illustrated by the following cases. A very great majority of cases of puerperal convulsions are associated with albuminuria, and it is of some cases of this kind that I now write. I do not state that in many cases the renal trouble alone fails to explain the convulsions ; but I believe that there are some cases in which, although

albuminuria in a severe form is present, yet the albuminuria is not the whole of the disease nor the whole of the condition giving rise to the convulsions. It is not my object to explain how renal lesions bring on convulsions, but simply to show that it is, in some cases at least, only a part, and it may be only an inconsiderable part of the disease present. [With this object Sir John Williams relates two cases which appeared to be cases of the same disease. In the first, there were convulsions, albuminuria, slight jaundice, with albumen in the urine. In the second there were the same symptoms terminating fatally, and there was, therefore, an opportunity of examining the organs after death. The kidneys were in the first stage of Bright's disease, the liver was somewhat enlarged and presenting vacuolated cells and disseminated points of necrotic tissue.] The condition presented by the liver can only be the result of severe contamination of the blood. But how that contamination was brought about is a matter of conjecture only. The kidney condition may possibly be the result of arterial tension—but in this instance, of blood poisoning also. What is the relation of the convulsions to these conditions of liver and kidneys? Are they the effect of one or both? Or are they the direct effect of the pregnancy upon a sensitive nervous system? Or are they the indirect effect of the pregnancy acting through impaired blood? To these questions I have no answer to give but this, that there are strong reasons for believing that the albuminuria is not the sole cause. I have shown, I think, that the disease is far more complicated than the first stage of Bright's disease. Then we find that convulsions are comparatively rare in chronic Bright's disease. But more than that—they are so rare in simple acute Bright's disease that their occurrence, as a result of this condition, has been called in question. They occur most commonly in the albuminuria which follows acute specific disease, and especially scarlet fever, and in that which comes on during pregnancy. In scarlet fever, it may naturally, and perhaps safely, be inferred that the blood is tainted by the scarlet fever poison; while in pregnancy, the form of the poison has not been discovered, though it must be inferred that a poison is present from the conditions found after death. (The Practitioner, January, 1895, p. 2.)

RETINITIS ALBUMINURICA.—On the Duration of Life after the Appearance of.

Possaner (Dissertation, Zürich) has examined the records of the Clinic at Zürich with the object of determining what is the usual duration of life in cases where chronic inflammation of the kidney has become complicated by the characteristic retinal changes. In 67,000 cases from the Clinic, albuminuric retinitis was

observed 131 times; of these, only 80 were followed to their termination. In 8 of these, again, death was accidental, so that the statistics on the point in question were gathered from 72 cases. The condition subsequent to the discovery of the retinitis—which, it may be inferred, was made soon after its appearance—differed according to the social status and sex of the patients. Of 39 private patients, only 23 died within two years; 16 lived from two to eleven years. Of the latter, the duration of life varied for the men from two to eleven years, and for the women from three and a half to eleven years. Amongst the remaining 33 hospital patients only four women survived from two to six years; all the others, including all the men, died within two years. This difference, according to sex and social position, points, Possaner believes, to the influence of hygienic measures and of alcoholism on the kidney disease. His statistics render the prognosis, therefore, not so unfavourable as is usually supposed. (*Edinburgh Medical Journal*, April, 1895, p. 953.)

SEMINAL VESICLES.—Inflammation of the.

Before the annual meeting of the American Association of Genito-Urinary Surgeons, held on May 29, 30, 31, and June 1, 1894, Dr. R. W. Taylor, of New York, read a paper with this title. This affection might be acute or chronic. The acute form had many points of analogy with epididymitis. Both affections were almost always secondary to gonorrhœa, occurring in the third or fourth week, or to hyperæmia of the posterior urethra due to masturbation and venereal excesses, or to inflammation of this region resulting from traumatism, catheterism, endoscopy, or strong injections. The symptoms of the acute form were quite similar to those of posterior urethritis and to those given as diagnostic of the several varieties of prostatitis. The patient first experienced pain, either of a dull or throbbing character, or a sensation of weight, which he referred to the deep portion of the pelvis just within the anus, or at the neck of the bladder, or in the perinæum. There was marked increased frequency in urination and tenesmus; sometimes mild, again quite decided, and in some cases very severe. As the bladder filled, the painful symptoms increased in severity, and there might be pain at the end and sometimes at the root of the penis. There might be fever, chills, and malaise. All these symptoms might be present in posterior urethritis, so that the crucial test in diagnosis was palpation of the prostate and seminal vesicles by means of the finger in the rectum. If the case was one of acute posterior urethritis the prostate would be tender, even painful on pressure, and perhaps swollen. If gonocystitis was present and explored for early, one or both vesicles would be found to be much enlarged in all directions

in the shape of a distended leech, hot, brawny, and exquisitely tender. Defecation was very painful and perhaps complicated with rectal tenesmus, and might be attended with vesical spasms: sleep was heavy and unrefreshing, and often during the night painful erections, perhaps bloody, might add to the patient's sufferings. In a few days the swelling might still further increase, and then moderate fluctuation might be felt. The chronic form might result from the non-occurrence of resolution in the acute affection, and in this form the clinical history was tolerably clear and striking. But in the majority of cases it began as a low-grade inflammatory process in persons, particularly of neurotic type, who might suffer from chronic or subacute posterior urethritis or chronic prostatitis, in confirmed masturbators, in those given to excessive venery, and in alcoholics. In the acute form of this trouble resolution usually took place. In the chronic form amelioration and cure might be obtained. In some cases, however, the morbid process went on to the formation of large tumours, which required operative interference. When it was recognised in the acute stage, gonocystitis was to be treated on the general principles which governed the management of all phlegmasiæ of the genital and urinary organs. A good plan was to apply a large number of leeches upon the perinæum and the margin of the anus. Injections of cold water might be used, and the rectum might be packed with ice. Opium in suppositories, diluents, and saline cathartics might be administered as required. Should an abscess form, it might be reached by means of a long incision in the perinæum, just anterior to the anus. The resulting cavity should be treated on general surgical principles. When the abscess was not large, but well defined, it could be aspirated through the rectum. In more acute and extensive abscesses, free incision through the rectal wall, followed by careful antiseptic packing, had been recommended. (*New York Medical Journal*, February 2, 1895, p. 151.)

URINE, INCONTINENCE OF.—Turpentine in.

The unpleasant smell emitted by persons suffering from incontinence of urine can be conveniently covered, according to Dr. Emminghaus, by means of ten-drop doses of turpentine, administered in milk or water, three times a day. This converts the smell of stale urine into an odour resembling that of violets, as is well known to persons who have taken turpentine. The remedy is perfectly harmless in most cases, and has been given by Professor Emminghaus for many weeks at a time without any inconvenience. It is, however, contra-indicated in ulcer of the stomach, gastric catarrh, and nephritis, and also in some persons in whom turpentine tends to upset the digestive

American surgeons on the use of aristol in burns, a treatment that is by no means very novel, a Dr. Stern of New York employed it successfully more than three years ago. He and most of the writers referred to by Dr. Haas employed a ten per cent. ointment or solution of aristol in oil from the beginning. The great advantages of aristol are its analgesic action, its antiseptic properties, and its power of hastening cicatrisation. Added to these, which to some extent are shared by iodoform, is another great advantage—viz., its entire harmlessness. In this it differs from iodoform, which is unsuitable for application over an extensive surface, for fear of its exerting a toxic action. (The Lancet, November 10, 1894, p. 1112.)

BURNS.—Treatment of.

Lately it has fallen to my lot to treat certain severe burns, typical cases frequently met with when the clothes catch fire, in which extensive injuries to the third and fourth degrees are inflicted on the trunk and extremities. Lint soaked in warm carbolised carron oil with a thick envelope of cotton-wool is, perhaps, the best application for the first week ; but the nauseous smell of the linseed oil, combined with the fœtor of purulent discharge, is horribly offensive and helps to keep up the tendency to diarrhœa common at this period, which is frequently attributed to duodenal ulcer. Let me recommend the following alternative treatment. Dress the vast, beef-red, profusely suppurating wounds with gall ointment, thickly spread on strips of lint, or with ointment of galls and opium, or boric ointment having about a drachm of finely-powdered galls to the ounce ; wrap thickly in cotton-wool and bandage firmly, not loosely. Improvement is rapid, the smell diminishes, and the sufferer finds the treatment comforting. The admirable effect of gall ointment in coagulating albumen and restraining luxuriant granulations would seem to suggest it as a usual dressing in these cases. It is generally recommended that bandages in these cases should be lightly put on. But the fungous granulations are certainly more effectively restrained by firm pressure over elastic cotton-wool ; and there can be no question that this treatment is more merciful than the application of nitrate of silver, whilst equally useful. (Dr. Grose, The Lancet, March 23, 1895, p. 744.)

HIP DISEASE, TUBERCULAR.—The Results of.

From a consideration of the statistics of cases (390) treated at Tübingen for the last forty years, Bruns concludes—(1) Tubercular toxitis occurs almost wholly in patients under 20; (2) in a third of the cases there is no suppuration; (3) 55 per cent. of cases treated on conservative principles are cured (in four years

on an average); (4) death resulted in 40 per cent. of all cases, usually from tuberculosis of other organs; (5) of non-suppurative cases, 77 per cent. were cured; of fungo-purulent, 42 per cent.; suppuration in the joint doubled the mortality; (6) prognosis grew worse in proportion to the age at which the disease began; (7) of those really cured, many suffered later from tubercular disease of other organs; (8) resection did not seem to diminish the risk of general infection.—*Beiträge zur Klinische Chirurgie*, 1894, vol. xxii., No. 1. (Periscope of the Edinburgh Medical Journal, March, 1895, p. 858.)

INSOMNIA IN SURGERY AND ITS TREATMENT.

Dr. Geo. G. Van Schaick, in an article on the above subject, draws the following conclusions:—(1) That insomnia, from whatever cause, is an important complication of surgical disorders; (2) its relief is necessary to the comfort of the patients, improves the prognosis and materially assists recovery after operations; (3) where pain is the chief factor, morphine is the only drug that will relieve with certainty; (4) there are many surgical disorders in which insomnia may be relieved by trional; and, finally—(5) trional is an excellent drug for the purpose, as it acts rapidly and safely, has no inhibitory action upon the secretions, seems to possess a stimulating effect, is well borne by the stomach, is easily absorbed by the rectum, and fails to produce unpleasant after-effects. (New York Medical Journal, March 2, 1895, p. 268.)

RECTAL ETHERISATION.

Mr. Bernard Stedman read a paper on this subject before the Sheffield Medico-Chirurgical Society, in which he said that, though Pirogoff employed this method fifty years ago, it was only quite recently that it had been revived by Dr. Dudley Buxton. Mr. Stedman had lately administered ether by the rectum in about 20 cases of operations about the mouth in the Sheffield Public Hospital, and so far the results had been extremely satisfactory. The method used was that of placing a vessel containing ether in water at 120° F. and conducting the vapour through a piece of indiarubber tubing to the rectum. There was little or no struggling during the administration. The disadvantage was the length of time taken to anæsthetise some patients. For several cases it was over half an hour. This could be overcome by giving ether by the mouth as well at the outset. When this was done the temperature of the water need not be above 110°, this temperature being sufficient to keep the patient under by the rectum alone when once fully anæsthetised. The after-effects were very slight. There was no sickness in

half the cases, and in two or three there was a little diarrhoea with a discharge of mucus for several days. No pain about the rectum was complained of. No marked distension of the abdomen occurred during anæsthetisation. (The Lancet, January 12, 1895, p. 97.)

SPINE.—Lateral Curvature of the.

We meet with two classes of lateral curvature, according as the curvature begins in the dorsal or in the lumbar region. A common instance of the first class is in a girl, say of 16 ; the dressmaker says :—"Your shoulder is growing out," and in most cases it is the right blade bone which is more prominent than the left. Note that under normal conditions the scapulæ above, and the folds of the buttocks below, are perfectly level. But if one foot is placed upon a book the crest of the ilium is raised, the pelvis is sloping, and a curve is produced in the lumbar spine. This fact is important, because in many of these cases the pelvis is not straight, one leg being a little longer than the other. Few persons have eyes of precisely the same focus, and few have legs of quite the same length. A trifling illness in early life, with pain in one leg, perhaps in the hip, may have checked the growth of that limb. The effect of even a slight difference in length is to cause a tilt of the pelvis, the lower side corresponding to the shorter leg. The tilt of the pelvis accounts for the lumbar curve, but it only accounts for the dorsal curve when that is secondary to the lumbar curve, and is in the opposite direction, to preserve the equilibrium of the trunk. There is another class of cases, however, in which the dorsal curve comes first. A curve may begin there in consequence of a severe attack of pleurisy or from an empyema, which leads to contraction of one side of the thorax ; but quite apart from this we have curvature beginning in the dorsal spine, and I believe the correct explanation is that which has been given by Mr. Barwell. The serratus magnus, which determines the fixation of the scapula in the movements of the arm, tends to pull the ribs into an abnormal position if more work is thrown on one side than on the other. The connection of the ribs with the vertebræ causes the action of the serratus on the ribs to produce a rotation of the vertebræ on their vertical axes. The altered position of the ribs involves an undue prominence of the scapula on that side, and then the girl's shoulder is said to grow out. But other causes are often in operation. Habitual muscular action is frequently influential, and many young girls have more work put upon them than they can stand. Among the poor they are set to carry children almost as big as themselves, and in the middle and upper classes they are made to practice the piano for hours, or to draw or to write with arms and body in

a harmful position. Especially in writing at a flat table the elbow is fixed, and there is a strain on the scapula which the serratus magnus opposes by pulling on the ribs, and the effect is to cause a gradual rotation of the vertebræ. This result is slowly produced, but habitual posture in the course of months has a powerful effect. The ribs are drawn backwards and the scapula stands out. This theory of the influence of the serratus magnus may not be all the truth, but after thinking the matter well over I am convinced that it is true, and it is especially confirmed by the place at which this dorsal curve begins. When there is a primary curve in the lumbar region all that is really necessary is to rectify the shortness of one leg, which is the common cause, by a compensating boot. But I do not compensate by adding to the boot for the shorter leg. If, for instance, the left is half an inch shorter than the other, the bootmaker should take a corresponding amount from the heel of the right boot. The object is to get the pelvis straight by raising one leg or by lowering the other. It is better to first lessen the thickness of the sole of the boot on the longer leg, and only to add to that of the other if the first is insufficient. If an apparatus is needed it should be worn only in the daytime, and be carefully attended to so that it does not make the skin sore by chafing. Shall the girl be made to lie down or not? I believe that lying down is not of the slightest use in these cases. The practice is an old one, and it unquestionably rests the muscles, and it is wise to make a girl lie down for an hour after a ride or walk, but simply to rest the muscles, and not with the view of acting on the spine. Such is the general treatment of these cases. As far as you can, avoid special stays. There are some severe cases which require instrumental supports, especially cases in which bony deformity has resulted from rickets; but you should assure the parents that they are not to cure the disfigurement, but simply to prevent it becoming worse. (Mr. Christopher Heath, *British Medical Journal*, March 16, 1895, p. 573.)

SPRAINED ANKLE.—Treatment of.

The following is a successful method of treatment which involves no loss of time, requires no crutches, and is not attended with any ultimate impairment of function. No claim is made to any priority. The aim is simply to present a method which was first employed, so far as one can learn, by Mr. Edward Cotterell, of London. A strip of rubber plaster, about twelve inches in length, is applied, beginning at the outer border of the foot, near the little toe, and ending on the inner side of the foot, about its middle, just under the plantar arch. The second strip is applied vertically, and passes from about the junction of the middle with the lower third of

the leg, down alongside the tendo Achillis, over the heel, and terminating at a point just above the internal malleolus, but posterior to this. The remaining strips are applied in the same way, one overlapping the other about one-half, until the whole external malleolus and side of the foot up to the middle third of the leg is covered. It is well to re-enforce just under the malleolus by strips passing criss-cross, so as to give additional support to the part sprained. It is also important to have the strips well overlap each other, especially over the tendo Achillis and about the heel, as any slipping at these points may cause an unnecessary irritation when the boot is applied. Care must be taken not to completely encircle the ankle, but to leave a space, so that all constriction may be avoided. Where the sprain involves the tarsal joint itself, or the midtarsal joint, and where the whole foot is involved in the swelling. The first one starts on the inner side of the heel, passes back of the heel, below the external malleolus, over the dorsum of the foot, and terminates just under the ball of the great toe. The second one is started just under the external malleolus, passes over the back of the heel, over the front of the foot, and terminates just under the outer side of the foot, near the small toe. I sometimes apply extra strips up and down over the tendo Achillis, the ends terminating in the sole of the foot. This precaution I have found necessary to avoid any slipping of the strips about the heel. In cases where the toes are much swollen and where the whole ankle must be strapped, and where it is impossible to leave any space uncovered, every toe should be strapped separately before the ankle dressing is applied. This precaution is necessary to avoid swelling of the toes and insure additional comfort to the patient. Before any strips of plaster are applied, it is good practice to elevate the foot overnight or for a few hours, and employ immediate massage of the parts for a few minutes, then apply a roller bandage until one is ready to adjust the dressing. As a matter of fact, however, this precaution is seldom taken, because patients who have come under my care have generally had some preliminary treatment, and the temptation to put them on their feet at once is so great that it is difficult to resist the immediate dressing of the parts. The question is often asked, What is the theory of the method of treatment advocated? It has seemed to me that the equable support given to the tendons and ligaments about the joint results promptly in the resolution of all effusion, and that the functions of the tendons and ligaments are thus promptly restored; that use of the ankle is very desirable, and that the cure is brought about by the normal action of the foot. (Dr. Gibney, *New York Medical Journal*, February 16, 1895, p. 193.)

SULPHUR IN SURGERY.

Mr. W. Arbuthnot Lane, in a paper read before the Royal Medical and Chururgical Society, on November 27, 1894, stated that in consequence of his losing a patient by iodoform poisoning last year, he looked about for some material which, like iodoform, would act, under the influence of living tissues, by the production of powerful germicidal or inhibitory agents without possessing the poisonous elements which that drug occasionally exhibits. It occurred to him that sulphur, which when applied to cutaneous surfaces is able to destroy the organisms which cause such diseases as acne, scabies, eczema, tinea tonsurans, &c. (probably by the formation of sulphurous acid), might also, if placed in the tissues of the living body, result in the development of a germicidal agent in a quantity sufficient to destroy, or at least influence prejudicially, the growth of any organism with which it might come in contact. He first applied sulphur in September, 1893, and most successfully, in a case of very extensive and destructive disease of hip-joint, when he found that it produced a powerful caustic action upon the living tissues, associated with the escape of what appeared to be sulphuretted hydrogen. Since that period he had used it constantly for the treatment, not only of cases of tuberculous disease, which up to that time had resisted, too often successfully, every attempt of the surgeon, but also of disease resulting from the presence in the tissues of any form of organism. The paper was illustrated by details of cases of extensive tuberculous disease of the elbow, knee, tarsus, prostate, and spine, of acute septic spreading gangrene of the leg, of traumatic infection of the forearm, of lupus, and of carbuncle. Mr. Lane had arrived at the following conclusions as to the effect of sulphur:—(1) Neither sulphur nor the products generated by its decomposition act prejudicially upon the life or health of the individual into whose body it is introduced. (2) If placed in contact with recently incised healthy tissues, twenty-four hours suffice to render the parts sterile as far as organisms are concerned. (3) If the recently incised or scraped surface be but poorly supplied with blood, as, for example, the brawny edge of a carbuncle or the spreading gangrene of a limb, sulphur may be left in contact with the tissues advantageously for a considerably longer period. This also applies to the granulating surface. (4) The entry of other organisms into a tuberculous cavity does not influence the action of the drug, since it destroys all organisms, whether free in the cavity or intruding into the surrounding living tissues forming its wall. (5) The action exerted by sulphur is a painless one. Some observations by Mr. Pakes on the resultant chemical changes were appended, and a paper by Dr. de Ray

Pailhade was referred to. (*British Medical Journal*, December 1, 1894, p. 1239.)

TETANUS ANTITOXIN.

Dr. Richard T. Hewlett (Assistant Bacteriologist, British Institute of Preventive Medicine), after giving a detailed description of the mode of preparation of the antitoxin, makes the following statement with regard to this treatment of tetanus:—The antitoxin treatment of tetanus would seem to be the one which gives the best hope of cure, though it can hardly be so successful as the corresponding treatment for diphtheria is reported to be. The explanation of this is that tetanus is only recognised as being tetanus at a late stage when the toxins are circulating in the blood; the disease is far advanced before it can be diagnosed. Gowers estimates the mortality in traumatic tetanus at nearly 90 per cent., and in idiopathic at 50 per cent. I have been able to collect records of 42 cases of tetanus treated with antitoxin, nearly all traumatic, and of these 15 died and 27 recovered, giving a mortality of about 36 per cent. If these figures can be relied on, the result is encouraging; but the tendency is always to report successful cases only. The antitoxin must be administered by subcutaneous injection. It is difficult to state what the dose should be, for this has varied enormously in the recorded cases, from 10 c.cm. to 165 c.cm. Probably 20 c.cm. to 40 c.cm. for a first dose, followed by 10 c.cm. every six or twelve hours would be found most suitable. Of the dry antitoxin, 1 gramme corresponds to about 10 c.cm. of serum, so that the dose of this would be 1 to 4 grammes. If reduced to an impalpable powder, it dissolves fairly readily, 1 gramme to every 5 c.cm. or 10 c.cm. of sterilised distilled water. (*British Medical Journal*, March 2, 1895, p. 464.)

TETANUS.—Case Treated with Antitoxin; Recovery.

F. P., a blacksmith, aged 35 years, on November 23, 1894, struck his left hand with a hammer on the anvil. The nail became black, and the skin was slightly torn at the tip, but wrapping it in a piece of dirty rag he continued at work. During the ten days which followed, the thumbnail suppurated and was poulticed. On the evening of December 3, whilst drinking a pot of beer, he noticed that his jaws were stiff and would not open widely. This, the first symptoms, gives a maximum incubation of ten days. Next morning, the nail having become loose, he had it removed and dressed at Poplar Hospital; on his way home he noticed a stiffness in his back. He was restless and wakeful all that night, and suffered from "cramps" in his back, which became more and more severe and continuous. On December 5, although in great pain in the back, he went to

work as usual, but knocked off at 2 p.m., and on arriving home his wife noticed that "his face was changed and wrinkled." The cramps had now spread to his legs; he perspired profusely, and his wife could not insert her little finger between his teeth. During the next few days he became worse, his back was often markedly arched and his head retracted, continuous pain and stiffness being experienced in the neck. He had perfect control over bladder and rectum, but suffered from obstinate constipation. On admission (December 16) the man's face was pale, pinched, and anxious, his skin clammy, his half-closed eyelids giving him a sleepy appearance. The constant effort to keep the eyes open threw the forehead into transverse wrinkles. The corners of the mouth were drawn up, and this combined with the deeply-furrowed naso-labial folds formed a well-marked risus sardonicus. The head was retracted, the sterno-mastoids stood boldly out from the neck, the masseters formed hard prominences on the cheeks. The pectorals were sharply outlined and all these muscles were found hard and tonic, the arms were stiff the legs rigidly extended; both recti abdominales were hard as boards, and marked out in squares by their tendinous intersections. He could not protrude his tongue, and could only separate his teeth one-third of an inch; even this distance lessened with two or three attempts, until absolute closure resulted from spasm of the masseters. He complained of a troublesome cough, and of severe epigastric pain. His temperature was 97° F.; pulse strong, of fair tension, 96 a minute; his respiration 34, quiet but shallow. His urine was alkaline, clear, specific gravity 1014, contained neither albumen or sugar, and only a faint cloud of mucus. His thumb nail had healed completely. Soon after admission he was given an injection of 0.56 gramme of tetanus antitoxin, which was repeated the same night. He also had chloral hydrate gr. xv. every eighth hour. As there was no local inflammation the thumb was spared. When seen late at night, his pain was somewhat less severe, but there was no improvement in the rigidity of his muscles or the frequency of his spasms. *December 17.*—In the morning he again had an injection containing 0.56 gramme of antitoxin. In the evening he was given 2.25 grammes of antitoxin in 22.5 c.cm. of sterilised water, by four punctures, two in each thigh. He had a very bad night, broken by repeated cramps and by continuous pain in his back, but he fed well. *December 18.*—This evening, under chloroform, he had an injection of 0.875 gramme of antitoxin. He passed a bad night, the spasms being rather worse, and chloral gr. xv. were given to afford him sleep. *December 19.*—In the morning he vomited and again in the afternoon, whilst his appetite fell off from nausea; his muscles, however, were softer,

he could bend his legs and protrude his tongue, which he was quite unable to do previously. At night 2·25 grammes were again injected under chloroform. He passed a fearful night, keeping the whole ward awake with his cries, caused by repeated short spasms, chiefly in the back. Two doses of chloral of 15 grains each gave him but two hours sleep, and he vomited all the food he took. *December 20.*—In the morning he seemed very weak, but his pulse was fair. He still suffered from nausea, and his tongue was brown and dry. Pain and spasms were much less than during the night. He was again put on chloral gr. xv. every eighth hour. At 10 p.m. under chloroform 2·25 grammes of antitoxin were injected, the tension of the muscles having previously been noted, and his teeth ascertained to separate half an inch. On coming round from the anæsthetic he was noisy for a short time, but he slept with chloral until midnight. He then had several spasms which caused him to cry out. *December 21.*—At 4 a.m. spasms had ceased, the abdominal muscles were less rigid, and relaxed considerably at each inspiration; his mouth opened three-quarters of an inch, and, though low in spirits and despondent, his general condition was better, and his muscular system more relaxed. At 7 a.m. no further spasms had occurred, and his muscles were still softer. At 11 a.m. the palpebral fissures were wider, the thighs softer, and the legs less stiff. Temperature 102°. He was in better spirits, but nausea persisted, leaving him only towards evening, when he retained some food. At 11 p.m. he had 2·25 grammes of antitoxin injected, preceded at 9 p.m. by a hypodermic injection of morphine gr. $\frac{1}{4}$. *December 22.*—Sleeping quietly, no spasms or sickness having followed, and during the night he took food well. Much better and free from all pain save at the seat of the last injection, in the right thigh. He was given \mathfrak{zj} brandy in each feeder of egg and milk. Again he had the usual dose of antitoxin under morphine, as in the night previous. The improvement continued. *December 24.*—One night was missed, as the patient had so markedly improved. During December 23 he had no spasms or pain though his muscles were still rigid. The injection on Christmas eve was his last, and was given in two punctures, preceded by morphine gr. $\frac{1}{4}$, without exciting spasm. *December 25.*—A severe and last spasm took place. *December 26.*—He progressed uninterruptedly. No further antitoxin or narcotics were given, and he was able to masticate solid food with relish. *December 28.*—His pupils were dilated and his eyes widely opened, without the assistance of the frontales. The risus sardonicus was gone and his face wore a cheerful expression; his mouth now opened $1\frac{1}{2}$ inch, nor was this impaired by repeated efforts. His muscles were soft and

normal. *December 29, 1894–January 9, 1895.*—Patient was up and walking about the ward. His appetite was good, but he was still pale and thin at the latter date. (Under care of Mr. Hurry Fenwick, London Hospital, *British Medical Journal*, February 23, 1895, p. 418.)

TETANUS, CHLOROFORM IN.

P. A. Prëobrajensky (*Vratchebnyia Zapisky*, No. 7, 1894) relates four cases of acute tetanus treated by chloroform inhalations which were repeated from one to three times a day, the daily dose of the drug varying from 2 to 4 drachms. In addition, hot baths and subcutaneous injections of morphine were occasionally employed. Three of the patients recovered; one succumbed from supervening catarrhal pneumonia on the seventeenth day of the primary disease. In all the cases the inhalations induced muscular relaxation, while the breathing became deep and regular, and the pulse stronger and slower. The patients could be fed during the early stage of the narcosis, which also secured a quiet sleep of several hours' duration. (Epitome, *British Medical Journal*, February 9, 1895, p. 24.)

TORTICOLLIS OF RHACHITIC ORIGIN.

Dr. Phocas (*Révue d'Orthopedie*, No. 1) reports three cases of torticollis occurring in young infants from ten to eighteen months of age, in which the deformity was apparently due to rickets. The diagnosis was made on the absence of the history of congenital defect, the instances having all occurred in cases of normal labour, and the condition having developed after some months of life. In none of these was there either contraction of the sternomastoid, or of the deep muscles of the neck, nor was there any evidence of paralysis as described by Guyon, while on the other hand the cases all showed evidences of general rickets. The treatment is directed toward that of the general rickets. As diagnostic points, he mentions that his cases all occurred in natural birth, with no sign of deformity until later life. The deformity of the head consists of a turning of the head toward the shoulder, in all of his cases being to the left, with the production of a deep fold in the side of the neck. The chin is slightly elevated and the face turned slightly toward the right. When an attempt is made to correct the position of the head, there is little resistance met by the sternomastoid, but when left to itself the head returns to its malposition. Usually lateral deviation of the head follows its throwing forward, and this position persists long after the torticollis has been corrected. The pain is not severe; yet the infants frequently resist manipulation, cry easily, and frequently show a grunting respiration. The anterior muscles are not found

contracted, and only occasionally the posterior. In all cases the other evidences of general rickets will be found. The duration of the condition is usually of several months; the lateral deviation of the head disappears before the forward inclination, which usually persists for a long time. (Boston Medical and Surgical Journal, February 7, 1895, p. 133.)

ULCERS OF THE LEG, CHRONIC.—Treatment of.

Excluding specific and malignant ulcers, and dealing with the simple ulcer, the result, probably of varicose veins, perverted physiological nerve force, or traumatism, Hallum has had excellent success from the following prescription:—Pure white lead (ground in oil) 15 oz., raw linseed oil 6 oz. Mix well and direct:—“Paint the ulcer once or twice a day, after washing with warm water. Dry well before painting.”—*The American Lancet*, September, 1894. (Periscope, Edinburgh Medical Journal, March, 1895, p. 853.)

AFFECTIONS OF THE SKIN, &c.

COAL TAR IN DERMATOLOGICAL PRACTICE.

Leo Leistikow (*Monatsh. f. prakt. Derm.*, Band xix., No. 8, 1894) has used coal tar very extensively for several years in the treatment of diseases of the skin, and prefers it in many respects to other species of tar. In his out-patient practice he generally uses it diluted with equal parts of spirit. The objections to the use of coal tar in private practice have hitherto been its penetrating smell, its thick consistence, and the black stain which it makes; the difficulty has been to remove these drawbacks without impairing the therapeutic efficiency of the tar. The author has found it impossible to do so in the form of pastes and ointments, but he has found the following tincture unobjectionable:—℞ Ol. lithanthracic, 3 parts; spiritus (95° C.), 2 parts; æther, sulphuric, 1 part. When applied to the skin with a brush this dries quickly, and can easily be removed when required by means of a little olive oil. Leistikow has used this tincture in 200 cases, and has seen tar folliculitis only twelve times, and tar poisoning (evidenced by deep black discolouration of the urine) twice. The effect was in the majority of cases very satisfactory. The tincture was a much more powerful antipruritic than other preparations of tar, more energetic, more penetrating, and more lasting in its effect, so that relapse was less common. It is not, however, adapted for cases in which the whole skin is involved; in these it should be applied only to the worst places. The tincture is indicated:—

(1) In dry forms of eczema of the hairy scalp, breast, belly, back, nuchal region, genitals, extremities, and navel; on the face, as it is apt to cause tar erythema, it should not be used in patients who are going about; (2) in psoriasis, especially in patches on the scalp, elbow, and knee; here a combination of it with 2 per cent. chrysarobin is of special advantage; (3) in Hebra's prurigo; (4) in trichophytic affections. (Epitome of British Medical Journal, December 1, 1894, p. 88.)

ECZEMA, ICHTHYOL IN.

Mr. Tomroy, M.B., relates the following interesting case:—The patient first came under my care in July, 1894, when I obtained the following history. About three years previously she showed symptoms of an eczematous eruption on the back of the neck, which gradually spread up to the scalp amongst her hair. She had the hair on the back of her head cut short, and the medical man whom she consulted prescribed an ointment for local application, as well as Fowler's solution to be taken internally. From that time she had never been entirely free from the eruption, and she had taken a considerable quantity, doubtless, of the usual remedies, but the eczema had never quite disappeared, though at times (especially when she was pregnant) it was less troublesome than at others. There is no trace of the disease in other members of her family. The eczema was very much worse in the spring. She had repeatedly taken arsenic, and had applied starch poultices and a creamy looking ointment to the eruption. In July she consulted me, when I told her to have her hair cut again, and after one application of a starch and boracic poultice. I ordered the following ointment to be applied night and morning: one ounce of ointment of oleate of zinc, half an ounce of oleate of mercury (20 per cent.), boracic acid ointment to six ounces; and prescribed half an ounce of this mixture to be taken after food: one ounce of the compound syrup of hypophosphites, forty-eight minims of Fowler's solution, water to eight ounces. The ointment allayed the itchiness, but otherwise it did not improve her condition. In September she consulted me again, and I resolved to try ichthyol. I obtained a supply of camphoid ichthyol and gave the patient the following instructions (at this time I may say that there were considerable inflammation of the skin at the back of the neck and numerous patches of eczematous eruption extending beyond the occipital protuberance): the head and neck were to be well washed with soft soap to remove any of the previous ointment, and at night a starch poultice was to be applied. The next morning the ichthyol was to be applied, and it was to be renewed once a day. On the day preceding the application I ordered her to have her hair well brushed, and this has

been done every day since. There was absolutely no other treatment given, and by the end of a month the skin of the neck was quite normal, and only one or two small spots could be seen on her head. By November 10 she was absolutely free from all traces of the eczema, and has continued so ever since. I have had considerable experience in the treatment of eczema, but I never had a case so intractable. In fact, I have been able usually to check it by means of the following lotion: two ounces of oxide of zinc, one ounce of boracic acid, half an ounce of subnitrate of bismuth, olive oil to twelve ounces; with the use of arsenic internally when the inflammatory symptoms had subsided. One of the severest cases of eczema I ever saw was cured after about six weeks' treatment with the above. (*The Lancet*, December 22, 1894, p. 1479).

FURUNCULOSIS.—Treatment.

Van Hoorn (*Monatsh. f. prakt. Derm.*, Bd. xix., No. 1, July 1, 1894) first wash the whole of the patient's body with potash soap and tepid water; then asepticise the boils and the surrounding parts with 1 in 1,000 sublimate solution afterwards covering them with a mercurial and phenol plaster, which is changed every day. If the furuncles burst, the contents are squeezed out and the cavity washed with sublimate. The results are excellent. If there was no fluctuation in the furuncles, absorption takes place very quickly. If there was fluctuation, absorption is rare, but the disease does not spread; the boil opens and rapidly cicatrises. During the treatment no further boils develop. The use of the actual cautery for the abortive treatment of boil. For this purpose he employs galvano-cautery irons ending in fine platinum points about a centimetre long and a millimetre in diameter. As soon as a furuncle shows its presence by a red areola surrounding a hair and by special sensitiveness to touch, he introduces the platinum point, brought to a white heat, into the centre of the areola, causing it to penetrate deep enough to act upon the whole length of the hair follicle, in the supposed course of which it is made to enter. The incandescent point is left for an instant in position and then withdrawn. When the furuncle has already begun to form we may still attempt to abort it; but we must in this case prolong the cautery so as completely to carbonise the small drop of pus which has already been produced. Brocq points out that French dermatologists have for a long time had recourse to the actual cautery applied by means of finely-pointed thermo-cautery tips, or, better still, with the electro-cautery for the treatment of rebellious acnes, especially where there are large lesions on the face and trunk. In this way they not only succeed in curing the lesions more rapidly, but arrest the formation of new ones. It

would seem as if the inoculable germs which produce acne are thus destroyed. (Epitome of the British Medical Journal, November 17, 1894, p. 79.)

IMPETIGO CONTAGIOSA BULLOSA.

The opinion has been expressed that impetigo contagiosa is a form of abortive pemphigus, the condition referred to under the latter designation being hardly yet exactly defined. Elliot has related an exaggerated instance of what he considers an example of bullous impetigo contagiosa. A boy of eight, living under bad hygienic conditions, developed an eruption eight or ten days after having been vaccinated, the sight of the vaccination being still unhealed, fungoid in appearance, and bathed in sero-purulent fluid. The eruption, which was extensively scattered over the body, had for its primary lesion a tense bulla of varying size—a pea to a filbert—which arose from apparently normal skin, and was not surrounded by any zone of redness. Its contents, at first clear, became at the end of a few hours somewhat cloudy but yet not purulent, and they would either be absorbed and a crust result or rupture take place. The walls of the bulla collapsed and were cast off, and a raw moist surface was exposed, rapidly becoming dry and crusted or scaly. In either case a broad red zone would then develop around the periphery of the lesion, and upon it a continuous bullous ring would arise, and a row of distinct and separate pea-sized bullæ. On this stage being reached involution and healing might occur, or a further evolution take place, and the same method of advance be pursued, involving a wider area of skin. Thus patches an inch or more in diameter were formed, somewhat resembling a brooch—a central bulla surrounded by one or more circlets of discrete, or smaller, though closely-set ones. No scarring or pigmentation remained after the lesions had healed. The treatment which proved curative was entirely local, though his health was improved by suitable hygiene and tonics. A lotion of ichthyol, at first 3 per cent., later 6 per cent., in carron oil, was applied, and it was regularly observed that when the entire surface was covered with the dressings and bandages, that steady involution occurred, but when any part was left unprotected, so that the boy could reach it with his hands and scratch the surface, then new bullæ appeared on that part. Baths of 1 in 5,000 of corrosive sublimate were given at a temperature of 101°, and after this he was dressed in such a manner as to occlude the whole body, and under this treatment the process steadily declined. Elliot compares the case with pemphigus vulgaris, acute pemphigus, erythema, multiforme bullosum, varicella bullosa, dermatitis herpetiformis, and hydroa, and regards it as impetigo contagiosa in its bullous form. Such

cases—less exaggerated—are not uncommon as a sequence of vaccination. They present contagious and auto-inoculable properties. And the local and external medication consists essentially in antiseptics, arsenic having little or no influence, as in pemphigus. The development is, there is much reason to believe, to be ascribed to parasitic organisms, though it must be confessed that a constant and unequivocal parasite has not yet been demonstrated as its definite cause in every case.—*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1894. (*Periscope*, *Edinburgh Medical Journal*, December, 1894, p. 563.)

NAPHTHOL AS AN APPLICATION TO THE SKIN.

—Dangers of.

Baatz (*Sem. Méd.*, October 24, 1894) has seen acute nephritis follow friction with an ointment containing 2 per cent. of naphthol beta in two brothers, aged six and eight respectively. The remedy was applied for scabies. This was cured, but three weeks afterwards albuminuria with œdema of the lower limbs came on. One of the boys died, and the diagnosis of nephritis was verified by post-mortem examination. In neither case had albuminuria previously existed, nor was there any history of an affection which could have been the starting point of nephritis. The author therefore warns against the use of naphthol beta as a remedy for scabies, in spite of the powerful curative effect which it has on that disease. (*Epitome of the British Medical Journal*, December 22, 1894, p. 104.)

PSORIASIS PALMARIS.

Psoriasis of the hands and soles of the feet is a very tedious as well as troublesome complaint, often resisting various plans of treatment. The disease is frequently, especially when the palm of only one hand or only one foot is attacked, due to syphilis. However, as far as my experience goes, the non-syphilitic forms of psoriasis palmaris are the most difficult to "cure." In the former variety, "Donovan's solution" seems the most suitable medicine, and which is useless in the non-syphilitic variety, especially if the nails are involved. It is necessary in the treatment of psoriasis palmaris to combine both internal as well as local treatment, and one of the most useful combinations is that introduced many years ago by the late Dr. Neligan of Dublin—viz., iodine, gr. 4; iodide of potassium, gr. 16; Fowler's solution of arsenic, gt. 80; syrup of orange, $\frac{3}{4}$ ii. The dose—a teaspoonful twice or thrice daily. The thyroid tabloids in ordinary cases of psoriasis, with the exception of one case out of ten, have in my hands failed, some of the patients being made much worse by their use—that is, as far as the cutaneous eruption was concerned. However, it is to the local treatment

I wish to direct attention. The point is to exclude the air from diseased places, and keep our remedy constantly applied. When the skin is much infiltrated I have found a preparation, that may be called an ethereal tincture of salicylic acid, useful not only in chronic infiltrated psoriasis palmaris, but also in corns and callosities. It is made with—rectified spirits of wine, \mathfrak{z} v.; sulphuric ether, \mathfrak{z} iii.; mix, then add gum mastich, gr. xxv.; when dissolved, further add one drachm of salicylic acid. This forms an excellent varnish, and is similar to the old-fashioned gutta-percha dissolved in chloroform. Moreover, in place of the salicylic acid, “goa powder” can be substituted in whatever proportion is thought necessary. If irritation is caused by its use, a cold starch poultice applied for a few hours allays the same. For washing the hands, in place of soap, I think quillaia bark beneficial, used with very hot water. The fluid extract can be employed mixed with a small quantity of coal tar (liq. carbonis detergens), and is thus similar to a French proprietary preparation called “coal-tar saporimé le bœuf.” One of the worst cases of psoriasis, that was under treatment for months, cured himself with “scurvy grass” (*Cochlearia officinalis*), taken internally, whilst a poultice of same was applied to the hands. Its diuretic properties were likely beneficial, and the prolonged moisture, when locally applied to the hand, was useful in softening infiltrated skin. (Dr. H. S. Purdon, Dublin Journal of Medical Science, January, 1895, p. 35.)

SEBORRHŒIC ECZEMA IN CHILDREN.—Treatment of.

Feulard (*Jour. des Prat.*, September 19, 1894) observes that attention must be given in the first place to the diet, which should be limited to milk, with the addition, in older children, of eggs. In the local treatment the first step is the removal of crusts, which may be effected by using warm coal-tar lotions, preceded, if necessary, by poultices. After the crusts have been removed he uses gauze compresses soaked in a solution of resorcin (6 in 1,000). These are kept constantly applied to the scalp by day, and are applied frequently to the face. By night an ointment is used, consisting of 1 part of balsam of Peru to 30 parts of vaseline. Later he uses fine starch powder, or a powder consisting of equal parts of starch and carbonate of bismuth. Recovery is rapid if the instructions as to diet are strictly observed and the dressings used with regularity. (Epitome of the British Medical Journal, October 20, 1894, p. 64.)

THYROID EXTRACT.—Treatment of Skin Diseases by.

Before the Hunterian Society on November 28, 1894, Dr. P. S. Abraham brought forward a patient suffering from lupus

vulgaris of the face, who had exhibited marked improvement under thyroid feeding. The patient, a girl, had been taking three tabloids a day until quite recently. She had also until lately been treated with cod-liver oil, and had used an ointment containing oleate of mercury, salicylic acid, and oxide of zinc. The treatment had already lasted six months, and it would be continued till the part was quite healed. This was the third case of lupus treated in this way by Dr. Abraham; the other two patients showed an improvement which had been maintained. Of 55 cases of psoriasis in which thyroid gland was administered, some of the patients had benefited, but the majority had not, and the general results were disappointing. He had tried the remedy in two cases of leprosy. One of these patients thought himself very much benefited—at any rate, he did not become worse in the course of twelve months; the other patient was in an advanced stage, and had since died. The late Dr. Rake gave the tabloids to five patients at the Trinidad Leper Asylum. His conclusions were not favourable, but his supply of the remedy was insufficient, and the patients who took it had already been affected for several years. Dr. Abraham knew of a female suffering from nearly complete alopecia areata, in whom the administration of thyroid gland had been followed by a very general sprouting of hair on the scalp, eyebrows, and elsewhere. (The Lancet, December 22, 1894, p. 1486.)

URTICARIA PIGMENTOSA.

Afzelius (*Hygiea*, May, 1894) publishes the first case of this affection observed in Sweden. The patient was a girl, aged six months. When the child was three months old the mother noticed red, slightly itching, elevations on various parts of its body, especially after the bath. After a time light-brown spots were noticed. Both the child and its parents were healthy. No history of urticaria or syphilis. Scattered over the body and extremities were very numerous pigmented, non-desquamating, spots, irregular but mostly round in shape and varying in size, the largest being about the size of a threepenny bit. They were most numerous on the upper part of the back and the back of the right leg, also on the scalp. On the face were several spots. The hands and feet were free. The colour varied considerably; some were reddish, others yellow, of the same colour as xanthelasma spots; the majority had a light-brown tint. The larger spots were hairy on the surface. They did not disappear on pressure. Most of them were level with the normal skin, but there were also some pigmented papules. There was scarcely any itching. On rubbing the spots with the finger they became raised and red. All over the skin surface a factitious urticaria could be easily produced; also on the spots themselves,

where a distinct white line appeared on the surface of the pigmented spot. The child was seen about a year later; it was still in good health, and normally developed. Some new spots had appeared, especially on the legs. The old spots had become distinctly darker; some of them were almost of a black-brown colour. The author has collected thirty-nine cases of this affection, of which fifteen occurred in England. (Epitome of the British Medical Journal, October 20, 1894, p. 61.)

AFFECTIONS OF THE EYE, EAR, THROAT, AND NOSE.

AURAL MASSAGE: Its Value in the Treatment of Various Diseases of the Ear.

“Aural massage” may be performed by moving backward and forward the auricle with the opened and closed meatus by the hands, with associated movements of the sterno-cleido-mastoid and occipital muscles, or by opening and shutting the orifice of the canal by pressure upon the tragus at its lower part. The force may be increased by greasing the canal with vaseline alone, or with medicated ointment or oils. Siegle’s pneumatic speculum may also be used for this purpose. Delstanché’s “masseur” is an improved instrument for the same purpose. The recoil of the valve in the instrument is accomplished by a spiral spring between the valve and the bottom of the metallic tube. Care is necessary in the use of the instrument for fear of rupturing the membrane. The to-and-fro movement may be kept up with advantage for some time. Delstanché’s “rarefacteur” has an advantage over the “masseur” in that without removing the stop-cock the air may be alternately condensed or rarefied in the meatus, or rarefied only. One of the most recent instruments for performing aural massage is the “vibrometer,” which combines massage by sounds, both mechanic and electric, with exhaustion or rarefaction with a series of musical strings. The author, after having tried these various plans of massaging the ear, arrives at the following conclusions:—(1) Imperfect hearing depends on so many causes that no treatment by any one of the mechanical means should be employed until a careful diagnosis has been made; (2) “Aural massage,” with the use of condensation and rarefaction of the air in the external meatus and middle ear, will give mobility in the parts and cause absorption of foreign material interfering with the hearing; (3) pneumatic massage is useful in middle ear disease, in which there are adhesions to be removed or stretched; (4) no treatment of this kind will take

the place of operations, for when all other means fail they must be resorted to, and with wonderful success in properly selected cases.—L. Turnbull, *Medical News*, December 1, 1894. (Milligan, *Diseases of the Ear*, *Medical Chronicle*, January, 1895, p. 297.)

CORNEA, FOREIGN BODIES IN THE.—Simple Method of Removal.

As quite a large proportion, if not a majority, of the foreign bodies in the cornea project beyond its surface and are not very firmly embedded, they can be easily brushed away. A very simple means which I have used for some years, and which I have no doubt many others have also made use of, is to take a wisp of sterilised absorbent cotton, and roll it on the end of a toothpick or cotton carrier, and simply wipe the cocainized cornea in the region of the injury. In a very large number of cases this simple means will dislodge the particle by its becoming caught in the loose fibres of cotton; and that is all, in a large number of such cases, that is necessary. The area around its point of impaction is not attacked, the least possible amount of injury has been done, and the resulting scar has been reduced to the minimum. A plan which offers special antiseptic precautions is to dip the cotton in some antiseptic solution, as a solution of bichloride of mercury (1 to 5,000) or a solution of boracic acid (3 per cent.) before applying it to the cornea, in this way also cleansing the wound caused by the foreign matters. (Dr. N. D. Harvey, *The Boston Medical and Surgical Journal*, February 7, 1895, p. 130.)

CORYZA CASEOSA.

Dr. McBride records two examples of this rare and curious disorder, and makes the following general remarks upon the disease:—It seems to me that the two first cases, at least, must be classed as examples of coryza caseosa. The earliest description of this affection with which I am acquainted is that by Duplay and Follin. These authors define the affection as “an accumulation within the nasal cavities of a cheesy substance analogous to that contained in certain sebaceous cysts which may form in sufficient quantity to deform the face, and lead to loss of smell.” They also refer to observations by Maisonneuve, Verneuil, Guyon, and Reverdin. In Verneuil’s case, however, the cheesy masses seem to have resulted from the presence of a nasal calculus, and therefore cannot be considered as illustrating the occurrence of coryza caseosa as a distinct clinical entity. Nélaton also endorses Duplay’s description, and confirms the existence of cheesy rhinitis as an independent affection. Among specialists, Cozzolino was the first authority who called attention to the affection, and he has since elaborated his observations,

although in all he has only met with three cases. In the last of these he made a careful examination of the caseous matter, and found (1) fatty material with crystals of margarin and stearin; (2) epithelial cells; (3) circular black bodies (*aspergillus niger*); (4) white corpuscles; (5) microbes. Cozzolino now proposes to apply the term "cholesteatomatous rhinitis" to the affection. Reausoliel briefly refers to two cases he has met with; according to the short description, I gather that in both there were polypoid projections from the middle turbinated body, and in one the diagnosis pointed to the empyema of the antrum, these examples thus proving a very marked parallel to the cases I have recorded. In addition to these observations, Strazza and Neumann have recorded cases in both of which masses of cheesy *debris* were found. In both a complete cure seems to have followed removal of the caseous material. In Strazza's case microscopic examination showed the foreign substance to be composed of epithelial cells undergoing fatty degeneration, and white corpuscles which stained with osmic acid. Neumann states that he found the substance removed by him to consist altogether of cholestearin. (*British Medical Journal*, November 24, 1894, p. 1173.)

EMPYEMA OF THE ANTRUM.—Treatment of the Chronic form.

In the first place, the diagnosis having been established, the patient is placed under the influence of a general anæsthetic, and after a crucial incision over the canine fossa and reflection of flaps with a raspatory, a large opening is made with a chisel and mallet in the anterior wall of the antrum according to the methods of Dr. Robertson, as published in the *Journal of Laryngology* and *Lancet*, 1892. Great care is taken that the bone is chipped away down to the level of the floor of the antrum, and a groove established down the alveolus. The opening is large enough to admit the finger to explore the interior. The interior surface is now curetted thoroughly so as to remove every trace of soft fungous granulation tissue, abscess sac, polypi, cysts, necrosed bone, or cholesteatomatous material. Instead of now closing the operation, I introduce the finger into the antrum to act as a guard, and pass Krause's trocar and cannula down the inferior meatus of the corresponding nostril well behind the nasal duct opening, and make one or two large perforations through inner wall. Chips of bone are usually pushed into the antrum, and can be detached by manipulation. We have left now as well as the large opening in the anterior antral wall a permanent large accessory ostium maxillare in the inferior meatus of the nose. The antrum and nose are now irrigated with boracic lotion, and the cavity of the antrum

packed with creolin gauze for forty-eight hours, the gauze being made to tightly fit and distend the bucco-antral opening, until the tissues around are matted together, and the passage established. After forty-eight hours the gauze is removed, and no form of mechanical drain is used. Free irrigation is practised thrice daily with a Higginson syringe. The patient is now further instructed to do two things; first, to frequently blow air through the antrum from nose to mouth and *vice versa*, and also to force boracic solution from mouth through antrum to nose. The object, indeed, of the large additional opening in the inferior meatus is to permit of the frequent passage of this free blast of air, which at once moves along any secretions tending to loiter in the antral recess, and at the same time has the practical effect of keeping the bucco-antral opening patent for a sufficient time; at least usually so. However, if the soft tissues should close over too soon, it is only necessary to apply cocaine and make an incision down to the perforation in the bony wall and dilate the soft tissues with a ring dressing forceps. *Pari passu* with the diminution of the secretion the opening contracts, but seldom heals up entirely. This is markedly so in my most successful cases, the patient when completely cured of suppuration being able to blow air through the antrum either way. (Dr. Scanes Spicer, *British Medical Journal*, December 10, 1894, p. 1359.)

EPISTAXIS, RECURRENT.

Roth (*Weiner Med. Presse*, No. 23, 1893) in a paper treating of the various causes of recurrent nose-bleed, shows that the description of the most common cause deserves special attention from the general practitioner who frequently does not appreciate how easily it may be both temporarily and permanently stopped. An erosion of varix of the cartilaginous septum, generally but a short distance within the nose, is often the cause of frequent and annoying bleeding. It may be readily stopped by tamponing during the bleeding, and permanently by the application of the galvano-cautery, trichloroacetic or chromic acid. The bleeding spot is often easily found by gentle friction with a probe. A pledget of cotton, moistened with cocaine, is laid against the surface until the bleeding stops, and an application of the cautery or caustic can then be readily made. (*Boston Medical and Surgical Journal*, February 21, 1895, p. 187.)

FURUNCULOSIS OF THE EXTERNAL AUDITORY CANAL.

In an article on this subject in the *Medical News*, January 19, 1895, Dr. S. M. Smith states that cases of furunculosis of the external auditory meatus usually occur sporadically, but at times

epidemically. During an epidemic in the autumn of 1890, the author saw 117 cases. In many cases the patients suffer from impaired general health, but in a large percentage the general condition appears to be quite satisfactory. The initial etiological element in their production is the direct entrance of a staphylococcus beneath the skin through an abrasion, or by way of a hair follicle, or ceruminous gland. In the treatment of such cases the great aim and object should be to render the auditory canal as aseptic as possible. The employment of camphor-phenol (55 per cent. camphor and 45 per cent. carbolic acid) will be found most useful, the preparation acting not only as an antiseptic but also as an analgesic. The author lays down the following rules for the treatment of cases of furunculosis:—(1) As antiphlogistic measures, use the leech or blisters in front of the tragus and hot antiseptic irrigation when indicated; avoid the use of poultices. (2) As local applications, cleanse the canal with alcohol and insert an ample tampon of cotton wool saturated with camphor-phenol, renewing this every twenty-four hours, or oftener if required. This is at once antiseptic and analgesic. (3) As constitutional remedies give tonics and alteratives, with the especial recommendation of arsenic in the form of Fowler's solution. This should be administered in increasing doses until its physiological action is obtained. (4) As an operative procedure, make a free incision through the boil and divide the periosteum down to the bone. This will prove necessary in well advanced and chronic cases, especially when pus has already formed. (Milligan, "Diseases of the Ear," Medical Chronicle, March, 1895, p. 443.)

HYSTERICAL DEAFNESS.

Disturbances of hearing which may be referred to as hysteria have always been considered as rare manifestations of this neurosis. This is, however, an apparent rarity only, if one may judge by the number of cases collected by Grandenigo for a work now in course of publication. Of the two cases reported by Cartaz, the first is the more interesting. A young girl 16 years of age had neither spoken nor apparently heard for the two days previous to the professional visit. She was well developed and had begun to menstruate three years previously; but this function was at first irregular, and she was occasionally at the time of the periods subject to attacks of torpidity with a tendency to weep without cause. Two days previously, in the evening, following an animated discussion with a school friend, she received on the left cheek, as a sequel of the argument, a vigorous blow. Stunned apparently for an instant, she quickly collected herself, and without a word went home, where, upon arriving, she burst into tears. Her mother spoke to her

without obtaining a response, and the patient made movements of the lips as if to speak, but without uttering a sound. She also appeared not to hear what was said to her, went to bed and slept soundly during the night. On the following morning the deaf-mutism was as complete as on the previous evening. The patient made signs, and wrote on paper the following words:—"I am deaf; I cannot speak. M. (giving the name of her school friend) struck me." The day passed without any disturbance or evidence of any special nervous symptoms; the patient had very little appetite and desired to be let alone; her attempts at speech were ineffectual, there being no emission of sound with the movement of the lips; but her intelligence remained unimpaired, and she responded normally to communications made in writing. Careful tests showed that she was absolutely deaf; she could hear neither the watch, the voice, nor the tuning-fork. Conversation was carried on in writing; and the patient stated that she suffered no pain, that she could not hear what was said, that she could not speak, and that she had a great deal of lassitude. The examination showed a total hemianæsthesia of the left side. There was no evidence of injury to the ear, either in the auricle or in the external canal. The membranæ were of normal colour and position. The left ear was as completely anæsthetic as the skin of that side; the sensitiveness of the right ear was normal; there was very marked anæsthesia of the pharynx and of the soft palate on both sides. The case was evidently a hysterical manifestation as the result of a shock and of the emotion which preceded and followed it. In answer to the written statement that she could be relieved, she wrote, "I will do anything that may be required of me in order to recover." The patient was very intelligent and responded readily, always in writing, to the questions which were asked her and to the directions which were given her, also in writing. An electric current of slight intensity was applied to the pharynx, the other pole being applied to the neck, when the patient immediately said in a clear voice, "You are hurting me." She was instructed in writing that it was necessary to be patient, and was again assured that she could be relieved. Either as the result of suggestion, or of the irritation of the galvanic current, the patient again exclaimed, and declared she could hear. The patient recovered rapidly and definitely. A hydro-therapeutic treatment was advised, and there was no recurrence of hysterical attack. (Dr. Clarence J. Blake's Report, Boston Medical and Surgical Journal, Nov. 8, 1894, p. 461.)

OTITIS EXTERNA, MENTHOL IN.

Cholewa, who has published a number of observations upon the use of menthol in otitis externa and otitis externa furunculosa,

makes a still further contribution confirmatory of his previous statements. He has now reduced the strength of his solution to 15 per cent. and 10 per cent., with results equal to those obtained with stronger applications, the pain in cases of furuncular inflammation being relieved, and the swelling of the canal disappearing usually within twenty-four hours; and to guard against relapse the application of wicks saturated with a stronger solution of menthol has been continued usually for a week. The same application has also been found useful after the boils have opened, and also in cases of secondary inflammation of the canal accompanying acute suppurative inflammation of the middle ear. In cases of acute purulent inflammation of the middle ear, after performing paracentesis, the writer syringes the middle ear through the Eustachian tube with a 1 per cent. saline solution, and then inflates the ear by means of the catheter, through which is introduced a few drops of a 10 per cent. oil of menthol. The external auditory canal is then carefully dried, and a dry menthol glycerine wick introduced as far as the membrana tympani, and changed once in twenty-four hours. The duration of disease in cases treated in this way averaged about eight days, and the good result is referred to the action of the menthol, not only upon the staphylococcus pyogenes aureus, but also, according to Rönick and Tröie upon the streptococcus pyogenes. (Boston Medical and Surgical Journal, November 8, 1894, p. 462.)

OTITIS MEDIA, CHRONIC NON-SUPPURATIVE, WITH IMPERFORATE MEMBRANE. — The Prognosis of.

Mr. Field, Aural Surgeon to St. Mary's Hospital, in opening a discussion on the above subject before the Section of Laryngology and Otology of the British Medical Association, summed up his conclusions as follows:—(1) Prognosis in chronic middle-ear catarrh is most favourable in children and young adults, in whom the cause is plainly attributable to local and removable obstruction, naso-pharyngeal or faucial abnormalities, or to simple mucous obstruction of the Eustachian tube from a common cold, or other temporary catarrhal condition, the result of inflation and other tests, satisfying us that secondary changes have not yet occurred to impede the functions of the membrane and ossicles. (2) When, from whatever cause arising, or however long or short the duration, or from the age of the patient and other circumstances, the hearing power after inflation is recovered in part only, the inference is that consecutive changes due to organisation of secretions have already commenced, and that slowly or quickly, the disease will continue to develop, no matter what treatment be adopted (Sexton, Roosa).

Roosa thinks that about 20 per cent. adult patients are relieved, but none absolutely cured. (3) The prognosis is unfavourable where, with much deafness, there is no improvement whatever after forcible catheterisation, dilatation of the Eustachian tube, removal of secretions, or the intratympanic injection of solvents. (4) The prognosis is absolutely bad (still as regards improvement) when the symptoms point to primary sclerosis; and worst of all (as regards in this case retention of any hearing power) where, with or without sclerosis, the tuning-fork tests point to serious labyrinthine disturbance. (British Medical Journal, November 24, 1894, p. 1157.)

PILOCARPINE IN MÉNIÈRE'S DISEASE.

Three cases of Ménière's disease are reported by Labit (*Rev. de Laryng., d' Otolog., et de Rhinologie*, September 1, 1894), in which the hypodermic use of pilocarpine gave satisfactory results. The author believes that of all the treatments employed in Ménière's disease, such as the ingestion of the sulphate of quinine, iodide of potassium, the application of electricity, &c., that of the subcutaneous injections of pilocarpine is one of the most rational. The disorder is caused in the majority of cases by a sudden hemorrhage into the labyrinth, producing directly irritation or compression of the peripheral terminations of the acoustic nerve, and of those of the semicircular canals. Since it is a well-established fact that pilocarpine, employed hypodermically, renders good service in pleuritic and peritoneal effusions, as well as in general exudations, it is reasonable to suppose that a similar action of the drug is exercised in like affections of the middle ear. The results obtained in the three cases reported seem to bear out this belief. The medicament was given in daily doses of from $\frac{1}{4}$ centigramme ($1\frac{1}{2}$ grain) to $\frac{1}{24}$ th centigrammes ($\frac{1}{4}$ grain), and even as high as 2 centigrammes ($\frac{1}{3}$ grain). These injections were generally followed by sialorrhœa and profuse diaphoresis. —*The Therapeutic Gazette*, November 15, 1894. (Edinburgh Medical Journal, February, 1895, p. 760.)

OPHTHALMIA NEONATORUM.—The Treatment of.

Kalt recommends irrigation of the eye with a 1 to 5,000 solution of potassium permanganate introduced through a small funnel, one end of which is placed between the eyelids, and the other connected with the bottle containing the fluid, which should be placed about a foot above the patient's head. The irrigations should be made twice a day, and two quarts of the fluid should be used at each time. If the disease is attended with serious or extensive trophic changes in the cornea, the irrigations must be used more frequently, say four times a day, and gradually lessened as the inflammation disappears. (Medical Record, December 1, 1894, p. 692.)

OBSTETRICS AND GYNÆCOLOGY.

ASAFŒTIDA IN OBSTETRICAL AND GYNÆCOLOGICAL PRACTICE.

Warman (*Therap. Monats.*, January, 1895) lays stress on the insufficiency of the remedies hitherto recommended in cases of abortion, pointing out that small doses of opium frequently disappoint, whereas large and repeated doses may prove injurious, both being of little value with patients subject to the habit of aborting. The author was therefore readily disposed to employ asafœtida, as first recommended by Italian obstetricians. It was usually administered in pills containing $1\frac{1}{2}$ gr., though an enema containing the tincture was soon preferred in cases of threatening abortion. The author found the drug most efficacious in reducing the hemorrhage which is prone to appear subsequently. Even with a very severe and alarming onset the first dose appeared to exert a most tranquillising effect, and led to a gradual separation of the ovum unattended by contractions. Several instances are described at length to illustrate this, but the material at the author's command is insufficient to warrant him in ascribing to asafœtida prophylactic properties. It is otherwise where habitual abortion has existed, and a successful issue in a most obstinate case is described, 5 in all having been observed by the author. To these patients the pills are administered, commencing with 2 per diem and increasing to 10, the number subsequently being again reduced. No unpleasant symptoms were produced, but, on the other hand, the action of the bowels was very much assisted, to which the author ascribes much of the success in those cases of what he terms "abortio habitualis." (Epitome of the British Medical Journal, March 2, 1895, p. 35.)

DILATATION OF THE CERVIX OF THE UN-IMPREGNATED UTERUS.

Dr. Braithwaite read a paper on this subject before the Leeds and West Riding Medico-Chirurgical Society, on February 1, 1895, in which he maintained that when the unimpregnated cervix was dilated, for whatever purpose, it was infinitely easier and more satisfactory to do it on the last day of the menstrual period, or when the discharge had just ceased. At that time the work was already done for us to some extent, and the tissues were so soft and elastic that dilatation could be accomplished to almost any extent in about twenty minutes, provided the patient was under an anæsthetic. (British Medical Journal, February 23, 1895, p. 422.)

DYSMENORRHŒA.—Treatment.

Dr. Schwarze speaks with emphasis against the use of narcotics. *Viburnum prunifolium*, fluid extract, in teaspoonful doses thrice daily for from five to seven days before, and continued during the menstruation, gives excellent results without unpleasant after-effects. It is not so successful if an inflammatory condition is associated with this symptom. He has noted, also, its value in arresting threatened abortion, even after the dilatation of the os uteri has been established. In many cases local massage is of great value, but it should only be employed in those which are not erotic. The use of a uterine sound before menstruation is frequently followed by relief, and of still more value is dilatation of the entire cervical and uterine canal. Electricity—galvanic current, aluminium negative pole in the uterus, large positive pole upon the abdomen, current of from fifty to sixty milliamperes—has been of service in many cases. Castration is not indicated from the standpoint of the gynecologist alone, but only after consultation with the neurologist and alienist.—*Therapeutische Monatshefte*, 1894, Heft 5, S. 191. (The American Journal of the Medical Science, October, 1894, p. 471.)

LUBRICANTS IN GYNÆCOLOGICAL PRACTICE.

E. C. Duplex (*Amer. Jour. of Obst.*, January, 1894) observes that when the vaginal secretions are profuse the lubricant is not required for the patient, whilst for evident reasons it is needed to guard the operator's finger. The infection of himself and of the next patient becomes possible. The lubricant should be aseptic and non-irritating. Olive oil and vaseline are often septic, and always hard to wash off. Soap, if strong enough to be aseptic, is apt to irritate the sensitive vulva. Glycerine is the best material; it is a deodorant; even after the digital examination of extremely foetid cancers the foul nauseating odour, usually so persistent, may be washed off from the explorer's hand by placing it under a stream of running water, if before the examination the hand be freely lubricated with glycerine. For this purpose a superior quality of glycerine is necessary. (Epitome of the British Medical Journal, February 9, 1895, p. 23.)

POSTCLIMACTERIC HEMORRHAGE.

Neumann (*Centralblatt für Gynäkologie*, No. 3, 1895) has made observations on almost 1,000 cases selected from the private and hospital practice of Professor Schauta. They were all gynæcology patients, who had completed 45 years of life. The half of these women had not yet passed the climacteric; in 500 cases the menses had ceased at least one year. From the tables prepared by the author it appeared that one-fifth of

the cases suffered from cancer of the cervix. Further it appeared that myoma of the uterus occur seldom the older the patient has become, and that in cases of myoma the menopause comes on about the 50th year. In the case of ovarian tumour, on the other hand, menstruation ceases at a comparatively early age, whilst the number of cases observed increases with the age of the patient. The author divides the cases in which the menses had permanently ceased into those in which hemorrhage had occurred and those in which it had not, and the result showed that of the 500 cases, 183, that is, 36·5 per cent., had to complain sooner or later of hemorrhage from the genitals. More than half, viz., 54 per cent., of the cases in which hemorrhage occurred were found to be suffering from cancer of the vaginal portion of the uterus. Of the cases of prolapse, one-fifth spoke of hemorrhage of very slight character, or of mere bloodstains on the linen, and similar statements were made by the women who were found to be suffering from colpitis senilis. The loss of blood in these cases was very trifling, and was only mentioned incidentally by patients who came under treatment on account of other ailments. In the case of mucous polypus of the uterus the account given by the patients was quite different. Many mentioned that their menstrual periods had returned; others feared that they were beginning to suffer from cancer; and in all the chief indication of the existence of the disease consisted of hemorrhage, frequently returning, and often very considerable in amount. The causes of hemorrhage in cases of polypus and cancer of the uterus is intelligible, and that occurring in prolapse and colpitis senilis is explained by the discovery of erosions on the vaginal portion of the uterus or in the vagina. In still another class of cases the cause of the hemorrhage could not be discovered, the diagnosis remaining incomplete. The author remarks that in every case in which hemorrhage from the genitals occurs a considerable time after the menopause, it is of the first importance to ascertain the site of the hemorrhage. When this has been discovered the question arises, what anatomical change is the cause of the hemorrhage? The answer to the question is easy enough when the bleeding comes from a point low in the genital tract, which is open to direct inspection. If the hemorrhage comes from the uterus it is necessary to make an examination of the uterine cavity by means of the sound, by the fingers, and by the curette, and to subject any portions of endometrium obtained to microscopic examination. The author cannot accept the opinion that in many cases of postclimacteric hemorrhage the cause is merely vasomotor disturbance—that is to say, he excludes all those cases which are unfortunately, both by the patients themselves

and by many members of the medical profession, supposed to be "hemorrhage of the change of life." The author next comes to speak of cancer of the body of the uterus. In all the material which was placed at his disposal—viz., 13,000 cases of gynæcological ailments—he found 29 cases of cancer of the body. Among these, 18 of the women—that is, 62 per cent.—had already for a long time, varying from two to seventeen years, passed the menopause when the first symptoms of the affection appeared. The average age of these patients was 57·4 years. In most cases the first bleeding occurred suddenly, and many of the patients assigned some strain, such as endeavouring to lift a heavy weight, as the cause of the hemorrhage. The most frequently-occurring symptoms of this disease were continuous and often profuse hemorrhage or hemorrhage irregularly recurring, with foul smelling and blood-stained discharge in the intervals. Hence it appears that repeated and serious attacks of hemorrhage are the most typical signs of cancer of the body of the uterus arising after the menopause. The symptomatic importance of attacks of postclimacteric bleeding in the diagnosis of cancer of the body of the uterus lies essentially in the characters of the hemorrhage, which resemble those of cancer of the cervix. It may be stated as the rule that if a woman, who has for a considerable time passed the change of life, suffers from chronic and considerable hemorrhages, which form the principal symptom of her ailment, and lead to anæmia, it is much more probable that she is the subject of carcinoma of the body than of the cervix uteri. The diagnosis is completed from the anamnesis and the general condition of the patient, and from the negative result of vaginal examination, except that the uterus is almost certainly found to be enlarged and less firm than normal. (Sinclair, *Midwifery and Diseases of Women*, Medical Chronicle, February, 1895, p. 372.)

POSTURE IN LABOUR.

Walcher first pointed out that in the lithotomy posture the diagonal and true conjugate diameters of the contracted pelvis are shortened, whilst if the woman be placed in the dorsal posture, with the hips at the edge of the table and the legs hanging down, these diameters are lengthened. Klein showed that this was true of the normal pelvis also. Dr. Jewett increases our knowledge on this point by giving the measurements of several pelves, from which it is evident that an increase of from $\frac{1}{2}$ to $\frac{3}{4}$ cm. is to be expected from the adoption of Walcher's posture. The bearing of this upon the delivery of women with narrow pelves is manifest, for it is the habit to place such patients in an exaggerated lithotomy posture.—(Edinburgh Medical Journal, February, 1895, p. 763.)

PREGNANCY AND OPERATIONS ON THE UTEINE APPENDAGES.

Delagénère of Le Mans (*Archives Provinciales de Chirurgie*, November, 1894) has performed three operations for diseases of the appendages in pregnant women, and all were afterwards delivered at term. In Case 1, the patient was three months pregnant, and was seized with symptoms of peritonitis. After the symptoms subsided a tumour was discovered. An operation was performed; and adherent ovarian cyst with twisted pedicle was discovered and removed. In Case 3, an ovarian dermoid was removed at the fifth month as it had grown very large. In the second case there was disease of the tube and ovary on both sides, and the patient at the fifth month was exhausted from pain. The abdomen was very tender. The appendages adhered to the uterus, and the intestines around them were also adherent. Both tubes and ovaries were removed. There was great trouble during convalescence owing to constipation. The patient was afterwards delivered at term of a healthy infant. A few hours later she felt severe pain close to the right side of the uterus, and there was nausea with pallor. All the trouble passed away at the end of an hour. A year later the patient was in excellent health. Henri Delagénère concludes that pregnancy need never modify the indication to operate. It is a complication of the existing disease, rendering operation all the more necessary if not urgent. (*Epitome of the British Medical Journal*, March 2, 1895, p. 34.)

PREGNANCY FOLLOWING VENTRAL FIXATION OF THE UTERUS.

Dr. Helena Goodwin, in a short paper, records a case in which pregnancy occurred in a woman who had had ventral fixation of the uterus performed as well as repair of the cervix and perineum. During pregnancy and labour (at full term) there was great pain in the left side, and a feeling of stretching in the site of the incision which had been made previously for the operation of ventral fixation. The after-pains were severe and long-continued. On the third day post-partum the temperature rose, and intra-uterine douching and packing with iodoform gauze were resorted to. She did not fully recover health, so about three months after delivery abdominal section was performed and the right tube and ovary removed. The uterus was found to be still firmly held to the anterior abdominal wall. Recovery was afterwards complete.—*American Journal of Obstetrics*, September, 1894. (*Edinburgh Medical Journal*, December, 1894, p. 566.)

PUBIC SYMPHYSIOTOMY.

In a paper on this subject, read before the Medical Society of the County of New York, Dr. Garrigues said that in 213 cases reported between 1887 and 1893, 183 mothers had recovered and 27 had died, and in 3 cases the result was unknown. This made the maternal mortality 12·85 per cent. The result among the children was unknown in 8 cases: of the remaining 205 children, 7 had died before the operation and 9 during the operation, while 158 had certainly been saved. The infant mortality was really 4·54 per cent., although, if we counted those that died a few days afterward, the mortality would be increased to 20·2 per cent. These operations had been done by a great many different operators, and, as a rule, they had not been specially skilled in the operation. Under the most favourable conditions there was practically no maternal mortality, and, although the outlook for the child was not so good, it was better than by other methods. Several operators had reported cases in which the urethra, bladder, and vagina had been torn during the operation. Such accidents were, of course, more apt to occur in primiparæ. They could be avoided to a great extent by slow extraction. It could not be denied, however, that a certain number of these women had a waddling gait; thus, Zweitel had 3 such results in 23 cases. Although such a gait did not look well, it did not prevent the woman from earning her living by hard physical work. In the flat pelvis an easy delivery should be expected when the conjugate was three inches. In a flat pelvis the upper limit for the operation should be three inches and a half, and in a generally contracted pelvis, even four inches. The induction of premature labour gave a maternal mortality of 5 per cent., as against 13 per cent. in symphysiotomy, but the infantile mortality was very high—some even placed it as high as 66 per cent. There would be, of course, many cases in which the patient would not come under observation sufficiently early to make this procedure serviceable. Among the most skilful operators the mortality from symphysiotomy was practically nothing whereas the mortality from Cæsarean section was 8 per cent. Symphysiotomy, the author said, had even competed successfully with the Porro operation. He believed that even difficult forceps operations and versions should be superseded by symphysiotomy. With a conjugate less than three inches both the high forceps operation and version presented greater dangers than symphysiotomy, to say nothing of the evil after-effects of difficult forceps delivery on the child's intellect. It was not at all necessary to wire the divided ends of the bone; an adhesive-plaster support was sufficient. It was desirable to place a drainage-tube at first behind the symphysis. (*New York Medical Journal*, December 29, 1894, p. 827.)

REMOVAL OF THE UTERINE APPENDAGES FOR UTERINE MYOMA.

Cullingworth, in a paper in the St. Thomas's Hospital Reports, 1894, arrives at the following conclusions from his own experience :—That it affords an almost certain means of relieving all the more dangerous symptoms in cases in which active treatment is necessary, and in which removal of the tumour or tumours is either impracticable or likely to be attended with special difficulty or grave risk. That it is unsuitable in cases where the tumours have attained a very large size, or have become œdematous, or have undergone cystic or other degenerative change. That it is peculiarly applicable to those cases in which the tumours are for the most part intra-pelvic, and in which operative interference is required for the relief or prevention of dangerous pressure symptoms. That its field of usefulness is likely to become curtailed in proportion as the technique of abdominal hysterectomy improves and the mortality of the latter operation diminishes. That although, in experienced hands, its mortality is not high, it should never be regarded or spoken of as a slight or minor operation. That it is impossible to know beforehand whether it will be an easy or a difficult, or even a practical operation. That the relief is not generally so prompt, or convalescence so free from interruption, as in an ordinary case of ovariectomy, or even of abdominal hysterectomy. That before being submitted to the operation a patient should, in the interests both of herself and the operator, be made fully aware of the uncertainties that specially attend it. (Sinclair, "Midwifery and Diseases of Women," Medical Chronicle, February, 1895, p. 369.)

SEPTICÆMIA FOLLOWING CONFINEMENT OR MISCARRIAGE.—Treatment of.

For the last three years or more I have been taking a course in the above-named cases that is original with myself, and one which I have now tested in a sufficient number of cases to justify me in recommending it to the profession in general. As soon as any symptoms show themselves I bring the hips to the edge of the bed, introduce a bivalve speculum, and, with borated cotton in a Bozeman's long dressing forceps, wipe out thoroughly the whole uterine cavity until the cotton comes away odourless and clean. I then dip a bunch of the cotton in iodized phenol and daub it over the whole interior of the uterus. It has never caused pain or the slightest unpleasant symptoms of any kind, and from the first treatment (and one is often sufficient) I have never seen the symptoms increase. In a few hours the change for the better is surprising, and the rapidity with which involution takes place is simply marvellous. I give internal

remedies as indicated, and repeat the treatment next day, and every day in cases requiring it, until the indications cease. Cotton will wipe away shreds which the intra-uterine douche leaves behind. There is no danger of fluid passing through the Fallopian tubes. You can tell when the uterus is cleansed and the exact odour and appearance of what you get away, which you can not do when using water. The application of iodized phenol has all the advantages of that of mercury bichloride, and the rapid involution which follows its application can not be realised until it is seen. Lacerations of the cervix are never left with thick, pouting lips and callous edges, and it will save from the necessity of many operations for the repair of old lacerations. (Dr. Rose, Chicago, New York Medical Record, February 16, 1895, p. 209.)

SYMPHYSIOTOMY.

Pinard (*Annales de Gynéc. et d'Obstet.*, January, 1895) sums up his experiences. He has rigorously followed certain principles laid down over a year ago, namely :—(1) Rejection of induced premature labour ; (2) rejection of the forceps or other contrivance which involves the pressure of the foetal head against any bony resistance in the inlet, cavity, or outlet ; (3) unconditional and absolute rejection of embryotomy on the live child ; (4) momentary increase of the pelvic diameters (by symphysiotomy, pubiotomy, ischio-pubiotomy, or coccygotomy) in all cases where there is bony resistance not overcome by the uterine contractions, the presentation of the head being well determined, and careful calculation showing that division of the pelvic arch and a sundering of the halves of the pelvis to an extent not exceeding 2·7 inches (7 cm.) will allow of the passage of a foetal head at term ; and (5) Porro's Cæsarean section in cases of absolute pelvic contraction. Twenty-two symphysiotomies were performed in 1894, with 3 maternal deaths, 1 from intestinal obstruction and 2 from sepsis, which was present before admission ; 2 children were lost, 1 from severe injury from previous attempts at delivery with forceps, 1 from pressure of cord by head before the operation. In 13 cases the patient was a primipara, in 9 a multipara. The presentation was :—17 cases vertex, 2 breech, 1 shoulder, 1 forehead, and 1 face. The pelvic deformity for which symphysiotomy was undertaken was in twenty cases purely rachitic ; in 1 rachitic contraction complicated by congenital dislocation of one hip-joint ; and in 1 spondylolisthesis. In 1 case it was performed for the second time on the same patient. The total statistics of symphysiotomy in the same establishment in 1892-4 include 49 cases—4 women and 5 children (no note of twins) were lost. (Epitome of the British Medical Journal, February 16, 1895, p. 26.)

Symphysiotomy.

Winterberg (*Philadelphia Med. News*, January 12, 1895), after reporting a successful case where he operated, in San Francisco, sums up previous experience, and concludes:—Symphysiotomy is indicated in flat pelves with a conjugate of from 2.6 inches to 3.4 inches, in funnel-shaped pelves with a transverse diameter of pelvic outlet of 3.4 inches or less; in cases of dystocia caused by tumours in the pelvic cavity; and in cases of abnormal size of the foetus, but with normal pelvis. It finds a useful application in the removal of tumours of the bladder and pelvis, provided the age of the patient does not present a contraindication. In those cases in which prophylactic podalic version is still possible, this ought to be preferred to symphysiotomy, even in a pelvis with a conjugate of not more than 3 inches. Symphysiotomy should replace Cæsarean section and embryotomy whenever they are indicated within the lower limit of contraction. The results are favourable to mother and child; the operation is easily performed; besides an obstetric outfit, all that is needed is a surgical pocket-case. It can easily be done outside maternity hospitals. The after-treatment is attended with a little difficulty in private houses. Although comparatively safe, the operation may in inexperienced hands be followed by serious accidents, therefore it ought not to be done lightly without an imperative indication. As it is an operation of urgency, like tracheotomy, every practitioner should be able and ready to perform it. (*Epitome of the British Medical Journal*, February 9, 1895, p. 23.)

Symphysiotomy.—Permanent Results of.

Von Woerz (*Centralblatt für Gynakologie*, 1894, Nos. 36 and 37) reports 10 symphysiotomies. One died of sepsis; 1 passed out of observation in good condition; 8 were followed for a sufficient length of time to warrant a report of their permanent condition. Seven of them were capable of hard work without inconvenience; but of these one had suffered for some time from incontinence of urine, which was cured by cold baths. One could not work on her hands and knees without pain in the sacro-iliac joints.

Braum reports 8 symphysiotomies, with no death. Six are able to work without inconvenience; 1 suffers from incontinence of urine and sacro-iliac pain after lifting heavy weights; one has incontinence of urine after straining or lifting.

Among 18 patients there was then one death and one patient who passed from observation. Of the 16 remaining patients, 3 cannot do heavy work without pain, but are otherwise well, and 13 suffer no inconvenience. (*Boston Medical and Surgical Journal*, February 28, 1894, p. 209.)

TUBERCULOSIS AT DELIVERY.—Fœtus infected.

F. Lehmann, in the *Berlin Klin. Wochen.*, July 9, 1894, reports the following case :—The mother, aged 40, was admitted in labour at term, and in a few hours gave birth to a male child. She had long been phthisical, but there was no clinical evidence at the time of delivery of meningitis or of disseminated tubercle. Next day, however, distinct stiffness of the muscles of the nape, with paralysis of the sixth nerve, set in, and on the third day the patient died. The lungs showed old tuberculous disease and miliary deposits were disseminated over their substance. There was widespread meningitis. No naked-eye appearances of tubercle could be detected in the uterus and surface of the placenta, but a few tuberculous nodules were found in the omentum. The child died when 24 hours old. (Epitome of the British Medical Journal, December 1, 1894, p. 87.)

VENTRAL FIXATION OF THE UTERUS.—Effects on subsequent Pregnancies.

Löhlein (*Deutsch Med. Woch.*, No. 11, 1894) reports two cases of pregnancy in women who had been the subjects of previous ventral fixations. The first patient had a fixation in July, 1892, menstruation ceased in April, 1893, and severe vomiting appeared in March. This was most troublesome in the third month, and was much worse than in her former pregnancies. In the sixth month bands could be felt extending from the abdominal scar to the wall of the uterus near the fundus. The delivery occurred at term, and during labour the bands were easily apparent, the abdominal scar being drawn up towards the fundus with each contraction of the uterus. In the following March the uterus was found to be in anteflexion, movable, and at a normal height in the pelvis. The author thought that there was a development of the band during pregnancy, and that it involuted with the uterus during the puerperium. In the second case the uterus had been sutured to the abdominal walls at the end of a myomectomy in November, 1892. Five months later Löhlein was called to see her on account of uncontrollable vomiting, and found her to be three months pregnant. Labour was normal, at term. The fixation band was to be detected during labour, as in the preceding case, and the uterus was subsequently found to be in normal condition. These cases are certainly interesting, as showing not only that a ventral fixation does not necessarily interfere with the course of a subsequent pregnancy, but also that the growth of the uterus may take place without destroying the band which results from the fixation. (Boston Medical and Surgical Journal, February 28, 1895, p. 209.)

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

ART. 1.—ON THE TREATMENT OF PYREXIA.

By W. HALE WHITE, M.D., F.R.C.P., Physician to Guy's Hospital.

(*a*) *Hyperpyrexia*.—By this term is usually meant such an elevation of temperature that it of itself is probably of danger to the patient. The point of danger varies a little in different persons and different diseases, but for the majority a temperature over 106° is hyperpyrexial. The few cases of extraordinarily high hysterical temperatures are so rare and so little understood that, although often not dangerous, they are for convenience usually considered as hyperpyrexial.

In many instances all treatment is hopeless from the first, and in many others the hyperpyrexia is only registered immediately before death, but in all other cases cold must be applied promptly and resolutely. Occasionally in children, in whom the temperature fluctuates easily, cold sponging may suffice. But in nearly all cases a cold bath must be employed. For an adult whose temperature is over 106° , that of the bath should be between 70° and 75° ; for children it may be a little higher. The patient should be lifted into it in a sheet. The water should be stirred, and when the rectal temperature is 100° or 101° he should be taken out and put back to bed with a sheet over him. The usual duration of the immersion is ten minutes. If he is collapsed after the bath, hot-water bottles and strong brandy and water are necessary. In private practice a cold bath may be improvised by putting a large mackintosh sheet under the patient, banking it up with pillows so that he lies in a trough, raising the head end of the bedstead, and pouring cold water in at the head of the trough, and letting it run out at the foot into a pail. For hyperpyrexia the cold bath, unless the shock of it is too severe, is much more efficacious than the tepid bath gradually cooled. No dependence can be placed on antipyretic drugs; they act too slowly, in large doses they are direct cardiac poisons, and the more powerful of them break up the red corpuscles. J. H. Bryant found that 33 out of 56 cases of

rheumatic hyperpyrexia treated by the cold bath recovered, but of 7 not treated and 4 treated with antipyretic drugs all died. The report of the Clinical Society also showed that the treatment of rheumatic hyperpyrexia by cold baths is most encouraging.

(b) *Pyrexia*.—We now come to the very important question of the treatment of pyrexia when we cannot remove some obvious cause, as a clot on the brain, and we do not think that it is sufficiently high to, of itself, threaten the death of the patient. We must remember that it has never been shown that ordinary pyrexia is of itself harmful, and that in treating it we are only treating a symptom, just as we were when antimony and aconite were given to reduce the pulse in fever. Now we believe this treatment to be unwise; and as in any fever we are much in the dark concerning the cause and mode of production of pyrexia, and we do not know for certain whether our treatment diminishes the production or increases the loss of heat, we must admit that the treatment of this single symptom of fever has no *a priori* evidence to show that it too is not unwise. It has been, indeed, thought by some—as, for example, Cantani—that pyrexia is beneficial. He suggests that a moderate degree of it may diminish the virulence of the cause of the fever, aid phagocytosis, and have a kind of sterilising action on the body. He would not, therefore, treat it unless there is reason to think that it is diminishing the activity of the heart or nervous system. But even if pyrexia is not beneficial, that is no reason why we should treat it, for it may do neither harm nor good, and the remedy may be worse than the disease. That this is so will be seen from the following considerations. To begin with, the treatment of single symptoms, although sometimes necessary, should never be resorted to unless the patient will undoubtedly be thereby benefitted. It is bad for the state of mind of the doctor, and, therefore, bad in the long run for patients generally. Then mere reduction of pyrexia may give a false sense of security. We have seen that some at least of the specific micro-organisms manufacture two substances, one pyrogenous and the other causing fatal symptoms. By treating the pyrexia this last is still left active, although the patient appears better. We must also remember that, by abolishing an important aid to diagnosis, antipyretics do great harm in the early stages of obscure febrile cases. Then, again, lowering the temperature may impair the immunity which a single attack of a specific fever often confers, for we know that the conference of immunity, as by vaccination to protect from small-pox, often entails pyrexia. Another objection to acetanilid, phenazone, and phenacetin, is that large doses are powerful poisons. For all these reasons it appears that the practice of giving antipyretics for ordinary cases of pyrexia is pernicious and unscientific.

As we have not been able to show that pyrexia is necessarily harmful, and, indeed, the treatment of it may do harm, let us examine the diseases for which antipyretics are commonly used. In ague, quinine does not cure because it is an antipyretic, but because it is a direct poison to the plasmodium on which ague depends. The cold water treatment of typhoid fever is too wide a subject to discuss fully here. Suffice it to say that if large numbers are taken the mortality is less with this than with the expectant method, but mild cases do not require it; that no point of temperature, fixed for all cases at which to employ it, should be chosen, but that each case should be judged upon its merits; that it is rarely required if the temperature is under 103° , or, according to some, 102.5° , and, lastly, the cold bath is usually undesirable as the shock is too great. Cold sponging, the cold pack, the cooled tepid bath, and the tank treatment, have all been employed. No physician should be slavishly tied to one method; what is appropriate for one case is unsuitable for a patient more severely ill. For many cases frequent sponging with water at 80° suffices. This, too, is usually an appropriate temperature for a mackintosh bath lasting fifteen minutes. I want particularly to direct attention to the fact that it is not proved that it is because it lowers the temperature that this treatment is beneficial. It does more than this: it diminishes the delirium, the tremor, the prostration, and the liability to complications, although the pyrexia is probably not responsible for any of these.

I maintain, indeed, that we ought not to regard the cold bath, or sponging, as an antipyretic any more than as an antideliriant, but as acting—possibly by aiding the excretion of toxins—as a direct specific for typhoid fever. This explains the fact that it improves not only the temperature, but the patient's whole condition, and diminishes his liability to complications.

The profession is gradually looking with more and more disfavour upon phenazone, acetanilid, and phenacetin in typhoid fever. Nor is this surprising, for not only may they produce cardiac depression and cyanosis, but Roque and Weil believe that they do not accelerate the excretion of toxins.

In rheumatic fever the salicylates probably act not as antipyretics, but as direct specifics; for they are not powerful antipyretics, but, nevertheless, they remove the pain and sweating which powerful antipyretics fail to touch.

To sum up: Hyperpyrexia should be energetically treated by cold baths. In ordinary pyrexia the routine use of antipyretics is bad. In the cases in which benefit follows co-incidentally with the reduction of temperature, the means employed has a specific beneficial effect on the particular disease; consequently, the temperature falls at the same time as the other symptoms

improve. The means used is only antipyretic in the same sense as mercury is antipyretic in syphilitic fever. Phenazone, acetanilid, and phenacetin should rarely be used as antipyretics. —*British Medical Journal*, November 17, 1894, p. 1094.

2.—THE RELATION OF BACTERIA AND THEIR TOXINES.

By E. KLEIN, M.D., F.R.S.

PROPOSITION 1: *Pathogenic bacteria produce by their growth and multiplication specific poisonous substances which we call toxines.*—These poisons differ one from another according to the species of pathogenic bacteria, and the changes induced in the animal body by different microbes are due to these toxines. Before the existence and nature of these substances were recognised it was held—as, for instance, in the case of anthrax—that the induced illness was due to mechanical action exerted by the bacillus on the body of the affected animal. As the anthrax bacillus is an organism which grows freely, and perhaps more conspicuously, in the presence of oxygen, it was thought that this bacillus consumed all the oxygen in the tissues of the infected animal and in this way deprived it of life. It was soon discovered, however, that this was not a sufficient explanation, for it was found that an animal could be made fatally ill with anthrax and yet antecedent to its death by the disease the bacilli of anthrax could only in small numbers be detected in its blood. Injection into the animal body of the pure tetanus toxines obtained in artificial culture produced symptoms identical with those induced if the tetanus bacteria themselves were introduced into the experimental animal and allowed to grow and multiply therein. There can, therefore, be no question whatever as to the proposition that the pathogenic bacteria produce in the animal body toxic substances.

PROPOSITION 2: *Toxines as far as they have been investigated are definite chemical bodies.*—As a result of chemical analysis by Dr. Sidney Martin, it has been found that albumoses and alkaloids are present in the animal body in anthrax; and that in diphtheria there is present in the false membrane a body which behaves in every respect like a ferment, which ferment in turn acting on the tissues produces acid and alkaloidal bodies and albumoses. Similarly it has been found that, in

artificial media, the bacilli of diphtheria and tetanus elaborate each a ferment, whereas under like conditions the bacilli of anthrax elaborate albumoses and an alkaloid. What then, it may be asked, is a given toxine? Is it the secretion of a bacterium, like the ferment of diphtheria, for instance; or is it of the nature of a proteid body liberated by metabolism in the medium in which the bacterium has grown; or, again, is it part and parcel of the bacterial body itself? The poisonous substances produced in the animal body by the life processes of bacteria must be carefully distinguished from the poisonous substance or substances present within the protoplasm of the bacteria themselves. All observations tend to show that there is a definite distinction to be drawn between the poisons which may be present in the bacteria themselves and the poisonous substances liberated or elaborated by these organisms. When certain bacteria are introduced in large quantities into the peritoneal cavity of a rodent these bacteria themselves without any of their metabolic products are capable of producing symptoms of poisoning. For instance, if the growth of a given microbe scraped from the surface of a solid culture medium be distributed in some neutral fluid and then injected into an animal it is the bodies of the bacteria themselves that are introduced thereto, not the toxins, which they have elaborated in the culture medium. And it has been found, as a matter of experiment, that such inoculations produce, in the case of several species of bacteria, a poisonous action quickly causing fatal peritonitis; in two or three hours the animal is ill, and within twenty-four hours the illness is fatal. The typhoid bacillus and several other microbes behave in this way. It matters not whether the bacteria are introduced alive or dead into the peritoneal cavity. If the bacteria are previously killed by exposure to a temperature of 70°C. their bodies produce the same poisonous action, though it must be added that the poisonous action is more pronounced if smaller quantities of the living bodies are used than when larger quantities of the dead bacteria are employed. Evidently when the living bacteria are introduced in small quantities they go on growing and produce their toxins. The bacteria *per se* are in some cases, but not in all, poisonous. Thus, if the anthrax bacillus, or the diphtheria bacillus, or the fowl cholera bacillus, is introduced into the peritoneum of rodents no poisonous action results. The protoplasm of these microbes are not, like the protoplasm of the typhoid bacillus or of the vibrio of cholera, poisonous. Furthermore, as regards microbes whose protoplasm is poisonous, if a non-fatal dose—sufficient to make an animal ill, but not to kill it—is injected into the peritoneal cavity such an animal is protected from further protoplasmic poisoning by the same

bacterium ; but it is not protected against the toxines elaborated by the same species outside the animal body in artificial media. A very curious observation has been made with reference to these bacterial bodies. They probably contain more than one kind of poison. If, for instance, the enteric bacteria are killed by heat, and the precipitate extracted from their bodies by water, it is possible to wash out a substance which produces a febrile rise of temperature in experimental animals, and substances such as this are called "pyrotoxins" because they are capable of producing fever. These, however, are not the substances which have a permanent protective action when bacteria alone are introduced into an animal ; it is some other kind of substance bound up in the protoplasm of the microbe that protects the animal against further inoculation with the bacterium *per se*.

And next as to *antitoxins*. When an animal has passed through one attack of a given infectious disease—that is, when an animal has served as a host for the growth and multiplication of a particular pathogenic bacterium—it is found that its blood has acquired a peculiar faculty. The blood has become capable, not only of inhibiting further growth of the bacterium, but also of neutralising the toxines produced by the bacterium. Thus, if the cholera vibrio is introduced into the peritoneal cavity of a rodent in quantity just sufficient to produce an illness that does not prove fatal, such rodent ultimately withstands repeated injections of otherwise fatal doses of the vibrio. And further, if now blood of the animal that has thus acquired immunity is taken from it and introduced into the peritoneal cavity of another rodent this second animal will not become ill at all ; it is protected. This has been shown in the case of tetanus, diphtheria, and so on. Animals, therefore, which have acquired immunity possess in their blood a something that they had not before, and this something belongs to a group of substances called "antitoxins." These antitoxins must be very complex bodies because they are capable, not only of inhibiting the life processes of bacteria, but also of neutralising the toxines previously elaborated and that have been dissociated from the bacteria which produced them, and these two functions are, be it observed, utterly different.

How are these complex antitoxin bodies thus possessing dual functions produced ? There is a variety of theories as to this. In the first place there is the theory that these antitoxins are produced by the tissues themselves as a sort of defence against the toxines which have gained access to them, the toxines being thought of as stimulating the tissues to the production of certain defensive substances which are therefore called "antitoxins." In diphtheria the antitoxins produced in this way by the cells of

the tissues are considered to comport themselves just like ferments. This is the theory held by the French school. The Munich school says: There is no reason why the toxins themselves should not become converted into antitoxins. There is, however, little evidence in support of this view; and, indeed, there is some evidence which militates against it. Moreover, it seems to be reasonable to assume that the toxins stimulate the animal body to the production of antitoxin. There is yet another theory, and that is that possibly the bacteria indirectly play a part in the production of these defensive antitoxins. This raises the question, What becomes of the bacteria themselves in the animal that has been made ill by them and has recovered? The theory that bacteria have been in such cases swallowed up by phagocytes is long since dead and buried. It is now perfectly well established that acquired immunity is purely of a chemical nature, and therefore the theory of phagocytes is superfluous. But the bacteria may nevertheless themselves yield some substance which may assist in the production of these antitoxins. For when an animal is recovering from an infectious disease the bacteria which caused it degenerate *pari passu* with the progress of recovery, and their substances become absorbed and pass into the general tissues of the animal, so that the bacterial bodies themselves become part of its tissue juices. In some cases there is an excretion of bacteria, but not very generally; in most cases they are absorbed in the way I have noted. That incorporation of the dead bacteria with the tissues of the recovered animal may have to do with its own immunity and with the antitoxic quality of blood serum withdrawn from it is suggested by the following facts. When *dead* bacteria are introduced into the peritoneal cavity of a guinea-pig they are capable of protecting that animal's peritoneum against the growth and multiplication there of the living bacteria subsequently introduced. This is the case with the cholera vibrios, the typhoid bacillus, and the colon bacillus. Indeed, it is not very difficult to imagine that other substances superadded to the tissues—as, for instance, dead bacterial protoplasm—may form part of these antitoxins, and I, for my part, incline to this view. In a word, I suspect that antitoxic serum obtains from dead bacterial protoplasm that it has assimilated its power of inhibiting the processes of living bacteria, and that its power of neutralising the already formed metabolic products of bacteria is due to tissue change resulting from contact of the tissues themselves with metabolic poison. But, whatever the nature of these antitoxins, it will no doubt be found that they are not of the simple character that has been assumed—namely, merely secretions of tissue juices—they must needs be of a very much more complex nature.—*The Lancet*, January 5, 1895, p. 26.

3.—THE ETIOLOGY OF TUBERCULOSIS.

By HERBERT M. KING, M.D., Grand Rapids, Mich.

[The following paper was read before the Grand Rapids Academy of Medicine, May 28, 1894 :]

That the bacillus itself is not the absolute and direct cause of those earlier changes in the parenchyma of the lung, which, if unchecked, lead on to cavity, I think all must concede, in view of recent investigation, which has established by repeated experiment two facts which seem to me to be insurmountable objections to the theory of the direct relationship existing between the bacillus and the destruction of tissue, even to the most sanguine champion of the renowned Koch. (1) In the earliest stages of tuberculosis, the hyperplastic interstitial tissue, while clearly showing the presence of an inflammatory condition characteristic of tubercle, and while still having present all of the other elements found in any stage of the series of changes which follow, except, perhaps, pus, does not invariably contain the bacillus until the degeneration of the infiltrated tissue supervenes. Since, therefore, the bacillus is not necessarily present, it cannot be the direct and only cause of the localised hyperplasia which constitutes the tubercle. (2) Tubercle bacilli can be produced by repeated cultures which, apparently possessing all of the characteristics of the specific micro-organism in question, are inert to cause the disease, even when inoculated into the most susceptible animals. This is not quite so convincing an argument when taken alone, for it can easily be imagined that in the process of artificial cultivation the bacillus may lose its virulency ; but taken together the two facts mentioned offer an argument which cannot well be met on the theory of the bacillus itself being the direct cause of the first morbid changes. On the other hand, I am thoroughly convinced that the bacillus is the ultimate and essential factor in the production of tuberculosis ; that without its agency, no matter how predisposed by heredity, cachexia, or diathesis one may be, one can never develop tuberculosis. The exact nature of that agency, however, and the *rationale* of its action are still subjects for speculation.

In considering the few points which I wish to discuss here, it will be necessary to call attention to one or two etiological factors, which, I think, are pretty generally established :— (1) Phthisis involves, necessarily, a predisposition to the disease, either by an inherited tendency or an acquired cachexia, constituting what may be termed a pretuberculous state ; (2) the disease itself arises from causes which invariably originate outside the body ; and (3) tuberculosis in its incipency

is never a local manifestation of a general disturbance, but is, in the first place, a purely local lesion.

This theory is fully as tenable as that of the local origin of cancer. The encroachment of the disease from its local origin, however, is so very insidious and the symptoms arising from the local disturbance so masked by those arising from the early absorption of the specific poison generated, and which are the expression of its effect upon the vasomotor system, that it is not strange the theory is slow to gain credence. That such a theory, however, if generally adopted, would have a material bearing upon our treatment of the disease, must unquestionably be conceded. The communicability of phthisis from the sick to the well is no longer a question, and I am lately advised that in many parts of the country health boards and railroad managements require the same precautions to be taken, with respect to the shipment of bodies of persons dying of phthisis, as with those in which death has resulted from any other of the infectious diseases. How far this course is justifiable I am not prepared to say; but in my opinion, if some like precaution could be taken in the transportation of the many thousands of tuberculous patients who migrate semi-annually throughout the country, it would be serving a far more reasonable purpose; and while we might not, for many years to come, be able to estimate with any degree of certainty the value of such a precaution, the end, I am sure, would justify the means.

Arguing, then, upon the premise that tuberculosis is communicable, we have arising at the start, three questions: (1) What is the direct agent of communication? (2) What is the vehicle or medium of that agent? and (3) How does that agent reach the point at which the first serious pathological changes take place, viz., the interstitial tissue of the lung? This last consideration, I am aware, has really more to do with the subject of the pathology than that of the etiology, but may with propriety, perhaps be touched upon in this article.

In answer to the first question, it may be said that while at present we have no positive proof that the bacillus may not, in some instances, itself be the immediate irritating presence which causes the infiltrated deposit of tubercle, we do know pretty conclusively that certain matter which contains absolutely no bacilli, is capable, when inoculated into the bodies of susceptible animals of producing morbid changes identical with tubercle, and furthermore, that the pathological product thus generated, does not, at first, at least, contain bacilli, but simultaneously with the breaking down of this new tissue, appear the bacilli. Thus some of our most conservative observers still incline to the belief that the bacillus is the effect and not the cause of the disease.

Without entering into an exhaustive discussion upon this question, I may say that I am induced to take the following view of the subject ; *i.e.*, the mature bacillus itself is not the immediate irritating presence ; neither is any ptomaine to which its existence and presence give rise, the direct cause for which we are searching ; but, those forces upon which are dependent the growth and development of the spores of the micro-organism in question, require and necessitate that hyperplasia, degeneration, and ulceration which constitute the tuberculous process, and that each step of this process, as it were, marks a certain stage of embryonic development on the part of the bacillus. Furthermore, if this process of infiltration of hyperplastic tissue be positively arrested for a sufficiently long time, the spores become devitalised and the bacillus never develops. Thus it is seen often in sections made in hyperplastic lung tissue in close proximity to a softened tuberculous mass, swarming with colonies of bacilli, absolutely no bacilli are to be found, and yet the appearance in every other respect is pathognomonic of the specific disease. With this in view, it is still an open question whether certain agents, not necessarily germicides, but exercising a specific action upon the interstitial tissue by preventing or aborting the hyperplasia, would render impossible the conditions upon which depend the development of the bacillus. I very much doubt if the mature bacillus itself ever gains access from without, through any natural channel, to those points where tuberculous disease apparently originates. It seems to me far more reasonable to suppose that the spores deposited in the epithelial layer of the lining membrane of the bronchioles and terminal vesicles are absorbed by the lymphatics and conveyed to the contiguous connective tissue and undergo development, either along the course of such absorption or in tissue immediately adjacent. In short, that if bacilli exist in the infectious matter received, that particular generation of bacilli never reaches a point further than the epithelial lining, and only the infinitely minute spores which are beyond the possibility of demonstration, by the microscope, at least, reach the point at which subsequently the tubercle appears.

In answer to the second question, it is only necessary for us to consider what is generally conceded to be the common source of infection ; *viz.*, the sputum from persons or animals suffering from tuberculous disease of the lung, and to this may be added the various excreta from those in whom the disease is located at points more or less remote from the lungs. Thus the urine, the seminal fluid, the fæces, and in some instances even the perspiration, might be, under favouring conditions, the vehicle of infection ; and here again, it is worthy of consideration

that it is by no means necessary that the material of infection contain one single bacillus sufficiently developed to be recognisable as such. Of course the sputum from tuberculous patients in the vast majority of instances contains colonies of bacilli, easy enough of demonstration, and naturally such a product is much more infectious than that which contains only the elementary molecules, simply, however, because in it there is correspondingly a greater quantity of infection.

The manner in which the infectious material is most commonly conveyed to the vulnerable parts of the susceptible individual in the case of pulmonary tuberculosis, is generally thought to be by means of dust, which has either been in contact with, or is made up in part of, the expectorated matter from the unfortunate sufferer. We have no proof, however, that the vapour in the expired air may not contain infectious molecules, and although the probabilities are against it, I think we are justified in exercising precautions with respect to its possible conveyance in that way. It is an interesting question, and one which has a very practical bearing, just how long matter which in the first place is highly infectious, can retain its virulency. Experiments with a view to determine this question have recently been made, and I have been surprised to be unable to find an instance where such experiments have proved that tubercle bacilli, in a non-parasitic state, have retained their virulency for a period of six months. In a series of experiments conducted by Dr. G. A. Heron and Dr. T. H. A. Chaplin (London *Lancet*, January 6, 1894), both of the City of London Hospital for Diseases of the Chest, a number of guinea pigs (the number is not given) were inoculated with tuberculous sputum three months old. Most of the animals died from septicæmia within a week after the operation. The few that survived were in due time killed by chloroform, and of these not one showed any signs of having developed tuberculosis. The authors in this instance regret that the number was too small to be a very valuable addition to statistics, but thought it remarkable that two months after inoculation with stale sputum three months old, in which colonies of bacilli swarmed, five guinea pigs were free from tuberculous disease.

My third question is answered in part with the first. The spores having found their way into the epithelial lining of the mucous membrane, are with more or less avidity, according to the subject, taken up by the lymphatics and carried to and deposited in those parts for which they appear to have a peculiar predilection, naturally locating in that particular part best suited for the conditions which their development necessitates and always as near as possible to the seat of absorption. Thus in the bronchial glands the interstitial tissue

of the lung, the mesenteric glands, the lymphatic glands, points in and about certain of the bony articulations, the testicles, etc. I believe, not that the bacillus originates, *de novo*, in the tubercle, but that its development from the spore is the result of the disease process, to which the necessary requirements of the life and growth of that spore give rise ; that furthermore, when the bacillus is mature and has deposited its elementary spores in the body it has fulfilled its mission, is no longer an element of disease and is cast from the body as an effete product.—*New York Medical Record*, November 24, 1894, p. 644.

4.—CLINICAL OBSERVATIONS UPON A SERIES OF 80 CASES TREATED WITH DIPHTHERIA ANTITOXIN.

By J. W. WASHBOURN, M.D., F.R.C.P., Assistant Physician to
Guy's Hospital ;

E. W. GOODALL, M.D., Medical Superintendent Eastern
Hospital ; and

A. H. CARD, M.R.C.S., L.R.C.P., late Clinical Assistant Eastern
Hospital.

[The following is taken from an abstract of a paper read before the Clinical Society of London :]

Mode of Injection.—The injection was made into the flank with strict aseptic precautions. The quantity injected varied from 5 to 30 c.cm. at one dose, the total quantity during the course of any one case varying from 5 to 90 c.cm. With a well-made syringe no difficulty is experienced in injecting as much as 20 c.cm. at a time ; 182 separate injections were made, and in none of them was there the slightest sign of any local inflammation.

Results and Statistics.—Eighty patients under 15, certified to be suffering from diphtheria, were treated ; 8 were excluded from the statistics because they were clinically as well as bacteriologically not cases of diphtheria. The remaining 72 cases would have clinically been considered diphtheria, and can thus be compared with previous cases. The following table shows the results obtained :

Case Mortality of Diphtheria in Children under 15 at the Eastern Hospital.

	Cases.	Deaths.	Mortality per Cent.
1893	397	166	41·8
January 1st, 1894, to October 22nd, 1894 .. .	400	144	36·0
January 1st, 1893, to October 22nd, 1894 .. .	797	310	38·8
September 14th, 1894, to October 22nd, 1894 (39 days. Not treated with serum	72	28	38·8
October 23rd, 1894, to November 27th, 1894 (36 days). Cases treated with serum	72	14	19·4

It will be seen that the mortality has been diminished by one-half. The diagnosis of all diphtheria cases at the Eastern Hospital since 1892 has been personally supervised by one of the authors (E. W. G.). It is the opinion of this observer that the cases treated with the serum were rather above than below the average severity. Not much stress was laid on comparisons with other hospitals on account of the varying standards of diagnosis. During the period of antitoxin treatment at the Eastern Hospital, the mortality at the Western, South-Western, Fountain and South-Eastern Hospitals was 33·3, 32·2, 30·5, and 23·6 per cent. respectively. At the last named hospital the number of cases was too small for accurate comparison.

Of the 72 cases in the series only 61 showed diphtheria bacilli; of these 61 cases 13 died, a mortality of 21·3 per cent., considerably lower than that (38·8) of the previous series of 72 cases clinically diphtheria. An account was given of the cause of death in the fatal cases. In 10 death ensued from the poisoning of diphtheria, and in the rest from complications. In one case death occurred within eight hours and in another thirty-two hours after admission.

Tracheotomy.—There were 9 cases of tracheotomy, and 6 recovered. In 13 previous series of 9 tracheotomies the number of recoveries varied between 0 and 4, and the average number of recoveries was 1·75.

For the sake of comparison with M. Roux's cases, the authors analysed their cases of true diphtheria, and divided them into the following categories: Anginas, Croups not operated on, Tracheotomies.

Angina Pure (that is, without association with other bacteria): 30 cases with 8 deaths, 26·6 per cent.

Angina associated with Streptococci: 11 cases with 1 death, 9 per cent.

Angina associated with Brusou Coccus : 3 cases, no death.

Anginas associated with Streptococci and Staphylococcus Aureus : 2 cases, no death.

Croups not operated upon : 6 cases with 2 deaths. True diphtheria : 4 with 2 deaths. Associated with Brusou : 1 with no death. Associated with streptococci : 1 with no death.

Tracheotomies : 9 cases with 3 deaths. True diphtheria : 5 with 1 death. Associated with streptococcus : 3 with 2 deaths. Associated with streptococcus and staphylococcus aureus : 1 case, no death.

In comparing these with M. Roux's statistics remarkable differences were found. Of pure diphtherial angina there were in his series 120 cases, with 9 deaths, a mortality of 7·5 per cent. Of angina associated with streptococci, 35 cases with 12 deaths, a mortality of 34·2 per cent. It will thus be seen that pure angina cases at the Eastern Hospital showed a much higher mortality, and those associated with streptococci a much lower mortality than M. Roux's ; in fact, the mortalities were almost reversed.

On the other hand, the cases associated with the Brusou coccus agree with his in being mild. The number of tracheotomies and croups is too small to draw any conclusions in reference to this point.

The clinical course of the cases under treatment fully bore out the evidence given by the above statistics. An account was given of the effect of antitoxin in diminishing the exudation, reducing the pulse rate, and improving the general condition of the patient. In severe cases the effects were not observed till after two or three days. Mention was made of the fact that 20 out of the 61 cases were on admission suffering from the toxic effects of diphtheria, and an unfavourable prognosis was made ; 8 of these cases recovered. There is no evidence that the antitoxin diminished the incidence of albuminuria. It is still too early to speak of the effect on the incidence of paralysis, but so far 6 cases have occurred.

Apart from the curative action, two other effects were noticed—a rash, and the onset of joint pains. The rash occurred in 25 per cent. of cases, and appeared from seven to nineteen days after the first injection. It was of an erythematous character, and was sometimes accompanied by pyrexia. Except for itching it gave rise to no further inconvenience. In 6 of the cases there were joint pains, which appeared about the same time as the rash, and lasted at most three days. The hips were most frequently attacked ; there was pyrexia, no cardiac affection, and the condition of the patient was never serious. It was noticed that the incidence of rash and joint pains was greater in

the cases treated with the serum from the first of two horses from which it was obtained, than in those treated with serum from the second. The latter serum was much stronger than the first, and was used in smaller doses. With the exception of the antitoxin no other treatment was adopted, except that complications were treated *secundum artem*.

Dosage.—The authors recommended the following doses of the serum of which 0·0001 c.cm. neutralises a dose of the diphtheria toxin otherwise fatal to guinea-pigs. In severe cases 20 c.cm., when the patient is first seen, followed by 10 c.cm. in from 18 to 24 hours, and again another 5 or 10 c.cm. in another 18 to 24 hours; for a moderately severe case a first dose of 10 c.cm., followed by one of 5 c.cm. the next day, and perhaps another 5 c.cm. the day after that; for a mild or doubtful case one dose of 5 c.cm., should there be any reason to suspect that the case is likely to become worse.

Because in any given case the larynx is involved the writers did not necessarily consider the case a severe one; for by severe they meant one in which the toxic symptoms of diphtheria were present. But seeing with what rapidity membrane will spread along the air passages, they recommended that from 5 to 10 c.cm. of serum should be given in every case of diphtherial croup without toxic symptoms, to be followed by another 5 c.cm. the next day if the symptoms showed no improvement.

This series of cases showed that if in a severe case there was no improvement by the fourth day of the treatment, none was likely to ensue. But where improvement is observed by that time it is well to give another injection of 5 c.cm. on the fifth and sixth day.

The authors recommended the amount of the dose to be regulated not by the age or weight of the patient but by the severity of the attack.

A clinical account was given of the 19 cases that were shown bacteriologically not to be diphtheria. These cases were admitted into the diphtheria wards, yet did not contract the disease; but this was not attributed by the authors to the action of the antitoxin, the previous experience at the Eastern Hospital showing that there is little fear of the disease attacking such cases if proper precautions be taken.

In conclusion, the authors expressed their thanks to the Council of the British Institute of Preventive Medicine, and especially to Sir Joseph Lister and Dr. Ruffer. Thanks were also recorded to Dr. Richards, of the Eastern Hospital, for his assistance in carrying out the treatment and in recording of notes.—*British Medical Journal*, December 22, 1894, p. 1418.

5.—ON THE ANTITOXIN TREATMENT OF DIPHTHERIA.

By G. SIMS WOODHEAD, M.D., F.R.C.P.E., Director of the
Research Laboratory of the Conjoint Board of the Royal
College of Physicians, London, and the Royal
College of Surgeons, England.

[We reproduce here those parts of a lecture delivered at the Examination Hall on December 7th, 1894, which deal with the basis of the antitoxin treatment, the preparation of the antitoxin serum, and the statistics of the serum treatment:]

It should be understood at the outset that this method of treatment has really nothing in common with either vaccination against small-pox or with the tuberculin treatment of tuberculosis. These two methods of treatment are here brought into apposition, not from any similarity either as regards the nature of the processes or the results obtained by the two methods, but simply because they differ in all essential details from the antitoxin serum treatment. It is a well-known fact that an attack of scarlet fever—an infective disease—in many cases produces a specific insusceptibility against a further attack of that disease. Pasteur, as a result of his researches on certain of the infective diseases, came to the conclusion that the immunity or insusceptibility so brought about might be due to one of two things—(a) the using up of some special materials necessary for the nutrition of the specific micro-organism, or (b) the formation of some substance which, accumulating in the blood, acted as a kind of protective agent, preventing the further growth of micro-organisms during convalescence and for some time afterwards. He supposed, in fact, that the micro-organisms were killed by some such protective material as soon as they found their way into the tissues. Having this latter theory in mind, and being acquainted with the German and French researches as to the nature of diphtheria, Behring and Kitasato came to the conclusion that any substance so developed in the body in such a disease must act not only as a bactericidal agent but also as a neutralising or antagonising agent of the toxins formed and distributed throughout the body. Then Behring conceived the idea that it might be possible to produce this bactericidal and antitoxic product in one animal and then transfer it to another animal affected with the disease—that is, that he might introduce into the affected animal a quantity of the antitoxic material which could otherwise only be found in the body of this animal after a somewhat prolonged attack of the disease. Still going on the assumption that an animal might be rendered more

and more insusceptible to the action of the toxic products of bacteria if the disease were in the first instance modified so that it would not prove fatal, he found that he might obtain this insusceptibility by introducing the bacteria themselves and allowing them to produce the toxins in the body ; or he might grow the micro-organisms outside the body, modify their toxins by the addition of solutions of iodine dissolved in iodide of potassium, and then introduce these in gradually increasing doses into the tissues or into the circulation of animals. Using the poisons only, he found that he was able to graduate the severity of the reaction obtained, but he also found that he could greatly increase the dose to such an enormous extent that if there were anything in his idea of the formation of antitoxin he should have this substance developed in large quantities in the fluids of the body. Of course, materials contained in the blood serum can only be those that are introduced into it either from without or as the result of the vital activity of the cells of the body, the products of which are thrown into this fluid, and it is maintained, not only by Behring, Ehrlich, and Buchner, on the one hand, but also by Metchnikoff and his followers on the other, that the antitoxic substances—whatever they may be—found in the serum must be the result of the activity of the tissue cells, especially of the connective tissue and blood-cell groups, stimulated or acted upon by these toxins introduced from without. It may be said, indeed, that the tissue cells, when feeling the necessity of protecting themselves against the action of a specific poison, become so modified that they give rise to the formation of a substance which directly antagonises the action of that poison ; and this substance, thrown into the blood, remains there for some time, accumulates in greater and greater quantities as larger and larger doses of the poison are thrown in, neutralising the poison, whose power of doing damage to the tissues is thus checked at once. Where micro-organisms are used the matter of dosage is not so easily graduated and the bodies of the bacteria themselves have to be removed by the cells, even though their vitality is diminished or altogether removed by the altered serum. Here, then, comes the application of a new principle. The primary lesions in diphtheria are perfectly localised, but the effects of the poison are general, so that it was an excellent example on which to test the accuracy of the experiments carried out.

After various animals had been tried it was suggested by Roux and Nocard that the horse was an admirable animal from which to obtain the antitoxic serum. He has a naturally small susceptibility to the disease ; the blood when drawn from the vessels rapidly separates into two portions—a firm clot and a clear, straw-coloured serum ; considerable quantities of blood

may be readily obtained without in any way injuring the animal, which, if well fed, stands bleeding as well as our forefathers and is as little inconvenienced by it; indeed, he often improves greatly in condition during the period that he is under treatment. It is not here necessary to go through the various stages of the evolution of the method now in use; we may say, however, that first the organisms were placed in the tissues and injected into the veins; then the toxines of the diphtheria bacillus were separated and also injected, firstly into the tissues, secondly into the veins; and animals became gradually acclimatised, as it were, to the presence of enormous doses of most active toxine without being any more inconvenienced than they were at the beginning of the process by comparatively small doses of a diluted toxine. The following is an account of Roux's method of preparing diphtheria toxine with which the animal has to be injected. A culture of a virulent diphtheria bacillus is inoculated into a distinctly alkaline beef broth containing 0·5 per cent. of common salt and 2 per cent. of peptone, contained in a flat-bottomed flask, into which are inserted a couple of tubes, one attached to an inlet tube and the other to an outlet tube, the whole having been sterilised before it is inoculated with the bacillus. After the growth is well started—usually at the end of about twenty-four hours—a current of air is kept passing continuously over the surface of the layer of fluid, which should not be more than about half an inch in depth. The air must be moist in order that the evaporation from the surface of the broth may not go on too rapidly. A fine flocculent deposit forms on the bottom of the vessel. This deposit increases in thickness until the end of about a month; but even after the first ten days a very large amount of toxine is found in this fluid, but the amount of toxine goes on increasing so long as any fresh deposit is thrown down. At the end of a month, however, it is ready for use. It is so active that 0·1 c.c. is quite sufficient to kill in forty-eight hours a guinea-pig weighing about 500 grammes. The bacilli may be killed by the addition of 0·5 per cent. of carbolic acid, and the supernatant fluid, which remains clear as the bodies of the bacilli sink to the bottom, is used for the purpose of injecting the animal in which the antitoxin serum is to be formed, or the fluid may be passed through a Pasteur-Chamberland filter by which the bacilli are kept back, only the fluid containing the toxic material being allowed to pass through the pores of this filter. With the fluid so obtained a strong horse, which is first proved to be free from glanders and from tubercle, is injected. Small doses are used at first, either pure or with the addition of one-third of its volume of Gram's solution, in doses commencing with about 2 c.c. and gradually increased, so as always to set up some local swelling and a distinct rise of temperature. By

gradually increasing the dose and injecting at intervals of a few days, according to the time at which the clinical symptoms disappear, the antitoxic activity of the blood is continuously increased, until at the end of three months—though the time, of course, varies in different animals and according to the amount of immunisation employed—the serum is sufficiently potent to be used for the treatment of cases of diphtheria. In order to determine the exact antitoxic power of the blood taken from such an animal Ehrlich has devised a method by which this can be done with the utmost nicety. Of the poison which is known to be lethal to a guinea-pig, say, of 500 grammes, in doses of 0.1 c.c. he takes ten lethal doses, or 1 c.c., and in a test-tube adds, say, 0.3 c.c. of the blood to be tested; in another tube to an equal quantity of the poison is added 0.25 c.c. of the blood, to another 0.2 c.c., to a fourth 0.15 c.c., and to still another 0.1 c.c. Each of these mixtures injected into a guinea-pig will have a different effect. That containing the largest quantity of blood may be so thoroughly neutralised that the guinea-pig does not manifest a single symptom of ill health. If this be an exact neutralisation we shall find that the second guinea-pig, which received 0.25 c.c. only, may have a slight doughy swelling at the seat of inoculation, and along with this there may be a certain rise of temperature; otherwise the animal remains comparatively well, continues to eat, and very soon recovers its normal condition. In the third case the local manifestations are much more distinctly marked, the swelling is larger, there may be distinct necrosis in the centre of the swelling, and the temperature rises higher than in the other case, but after some time the animal becomes again perfectly healthy; whilst in the fourth and fifth doses the animals succumb, the fifth much more rapidly and with far more marked toxic symptoms, though with less local change, than the fourth. It is, of course, unnecessary to go beyond the stage at which the slight swelling makes its appearance in order to test the antitoxic activity of the blood, as the point at which the neutralisation is complete gives the determining figure for the strength of the antitoxic serum. In order to obtain a definite standard of dosage, Behring and Ehrlich have described what they term a normal serum—that is, a serum of which 0.1 c.c., added to ten times the lethal dose, is exactly sufficient to render it innocuous. One c.c. of such normal serum contains what they term one immunisation unit; so that from this may be calculated the strength of any serum used. If it required 0.3 of the serum, as in the above-mentioned case, to neutralise ten lethal doses of toxine, 1 c.c. of the serum would contain only 0.3 immunisation unit; but a serum of which 0.01 is sufficient to neutralise ten lethal doses of toxine is ten times the strength of normal serum, or 1 c.c. contains ten

immunisation units. In horses highly immunised the serum may be fifty or even a hundred times as active as normal serum. It is found that at least 500 of these immunisation units or ten of a 50 units serum, or five of a 100 units serum are necessary to produce the desired effects in cases of diphtheria, whilst in certain cases it may be necessary to give still larger quantities. Roux and Martin have now adopted Behring's original method of testing the strength, which they bring up to a constant before using. They inject a guinea pig weighing 500 grammes with 0.01 c.c. of the serum, and twenty-four hours later inject 0.5 c.c. of a living diphtheria culture strong enough to kill an unprotected guinea pig in twenty-four hours. If this small dose of the serum protects the animal against the action of the bacilli the serum is considered to be sufficiently powerful. One of the difficulties in connection with the preparation of this antitoxic serum is the lengthened period necessary for its production. Roux has brought it down to three months, and that is the time generally accepted as the practicable limit. Quite recently, however, Dr. Klein has obtained a serum which he finds has a specific action on the membrane in twenty-three and in twenty-six days. He believes, however, that the active principle in this case is not an antitoxin in the proper sense of the word, but a substance which acts on the diphtheria bacilli only.

In this country Dr. Ruffer was the first some months ago to obtain antitoxic serum from the horse; there are now at least six other sets of horses being prepared, so that in the course of the next few months a considerable number of observations will probably be available for statistical purposes. Having determined that the blood has reached the necessary stage of antitoxic activity the animal is bled. In the case of the horse this may be done to the extent of one or even one and a half gallons without producing the slightest ill effects; if the animal is well fed and his condition keeps up he may be from time to time re-injected with fresh quantities of toxine, and at the end of a month, if necessary, a similar quantity of equally potent blood may be again withdrawn; and this may in most cases be repeated time after time without impairing the general health of the animal. Roux and Yersin and Sydney Martin's experiments as to the effects of the toxine on nerves and muscle would lead us to expect some form of nerve or muscle degeneration after a prolonged treatment with the substance, but the horse appears to be so slightly susceptible to the disease that these changes seldom occur or are long delayed. The blood is, of course, taken with strict antiseptic precautions into sterilised glass vessels. It is placed in ice until coagulation has become complete; the clear serum is then carefully drawn off into sterilised flasks containing a few fragments of camphor, kept

cool and from the light. The Germans, on the other hand, add a 0·5 per cent. watery solution of carbolic acid.

What is claimed for the treatment by those with most experience of it? First, they hold, and statistics bear them out in this contention, that the case mortality from diphtheria, under the most varying conditions as regards virulence of epidemic, age of patients attacked and treated, locality in which the disease breaks out, and hospitals in which the cases are treated, is considerably diminished. It must be borne in mind that in this country, where the conditions are apparently more favourable than those in any other country, we had a case mortality in London of 23·3 per cent. in the year 1893; and in our hospitals, in which the conditions are certainly very much more favourable than either the French or German hospitals, the mortality was 30·3 per cent. One most important feature about the foreign statistics is that the cases were examined bacteriologically, so that in the opinion both of the clinical observer and the bacteriological worker the cases under treatment were undoubtedly diphtheritic in their nature. This is a most important point to bear in mind, as the case mortality cannot thus be modified in any way by the so-called doubtful cases, so that in the percentage of deaths the favourable results cannot be accounted for on any supposition that the cases treated were not cases of true diphtheria.

It is evident that should the antitoxic treatment of diphtheria become general we commence work under much more favourable conditions than obtain in the French and German hospitals, and as regards those cases that come into hospital, bearing in mind the fact that so many have to be admitted when the disease is far advanced, we cannot expect to bring down the percentage of fatal cases in the same proportion that has been done abroad, even supposing that all that is claimed for the antitoxic serum method of treatment is ultimately proved to be borne out by further experience. It may be objected, of course, that we have been able to bring our case mortality in this country so low by other means than those now suggested, but after all has been done much still remains to be done. In the light of statistics alone we are not justified in refusing to use a method of treatment which even abroad where the conditions are otherwise so unfavourable, has brought about such a marked diminution in the case mortality. It must be remembered in this connection that the statistics have in many cases been drawn from *children's* hospitals, so that the factor of age can to a certain extent be measured. More than this, however, we have direct clinical experience of the fact that in a large proportion of cases the exhibition of the antitoxic serum acts almost like a charm, especially, as already mentioned, in those cases in which suppurative changes have not commenced. The

temperature falls suddenly on the first or on the second day (except in the very severe forms of the disease, when the fall does not come on so quickly, and then takes place more slowly); the formation of the false membrane appears to be checked almost immediately—certainly within twenty-four hours. On the second or on the third day the membrane softens, is thrown off, and as it is shed the bacilli gradually disappear, sometimes as early as the third or the fifth day from the commencement of the treatment. The effect on the pulse is not so marked, but following the fall of temperature the pulse gradually becomes fuller and less rapid, and the general condition of the patient is markedly improved. It is also maintained, though on this point carefully compiled statistics are not yet available, that the sequelæ usually associated with diphtheria are neither so grave nor of such frequent occurrence when the serum treatment is used. It can certainly not be hoped to avoid these sequelæ in cases in which the disease is advanced before the treatment is applied, for much of the mischief in such cases has commenced before the poison has become neutralised, and so far as can be made out it is only in these cases that anything more than a temporary paralysis of the soft palate and a transient albuminuria is observed, and these apparently in a much smaller proportion of cases than in cases not treated by the serum method. There undoubtedly occurs in certain cases an erythematous rash, almost like urticaria, associated sometimes with sharp pains in the joints, especially of the knee; but this condition, though unpleasant to the patient, soon passes off, and has never, so far as I have been able to gather, been of a very severe character, and is met with in only a small percentage of the cases treated. Here, again, we have no definite statistics. It has also been maintained that this injection might lead to the formation of abscesses. Here, however, we have definite statistics, as Roux and Martin found that an abscess was formed in only 3 cases out of 3,000 injected, and even in these cases they were of trifling importance; whilst “abscess formation resulted only once in 200 injections made at the Kaiser and Kaiserin Friedrich Hospital, Berlin.”—*The Lancet*, December 15, 1894, p. 1412.

6.—ON CALOMEL FUMIGATION IN LARYNGEAL DIPHTHERIA.

By W. P. NORTHRUP, M.D., New York.

Statistics have not accumulated sufficiently to frame a strong argument in regard to calomel fumigation, but the conviction of those best capable of judging is positively favourable. In 275

cases of "true croup" collected by McNaughton and Maddren, 48·7 per cent. recovered, the only treatment being calomel fumigation ("sublimations"). Again, this medicinal treatment is advised after operative procedure has been required, and here its advocates are equally positive that it acts favourably. Dr. Brown gives 483 cases of laryngeal diphtheria treated without calomel fumigations with 35·4 per cent. recoveries, 250 cases with calomel fumigations with 47·5 per cent. recoveries. It goes without saying that a child which tides past the urgent symptoms on fumigation without operation and without wearing an intubation tube—other things being equal—makes the better and speedier recovery.

Method of Fumigation.—A tent or canopy is rigged about the top of a crib in any way most convenient. A sheet is thrown over supports and allowed to fall about the four sides of the crib. The supports may be upright sticks lashed to the four corners of the crib, or a line stretched between two uprights at diagonally opposite corners, or a stepladder placed astride the middle of the crib, or any other extemporised frame suggested at the time by the ingenuity of the persons in charge. The main point is to have a fairly large and fairly tight enclosure. In such a tent the child lies undisturbed; if sleeping so much the better. The crib tent is in use in the Willard Parker Hospital, New York. It contains about 50 cubic feet of air. The apparatus for furnishing fumes must first of all be safe from upsetting and the danger of fire. Such a one is easily extemporised in the following manner. Select some deep vessel, a wash bowl, saucepan, or *pot de chambre*; place in this an alcohol lamp; lay across the top a tin strip of any kind, and over the spot, when the flame of the alcohol lamp touches the under side of the tin make a little compact pile of the requisite amount of calomel for a single fumigation. As to the child, fumigation is often given while it sleeps, and it needs no preparation. Ordinarily eight to ten minutes are required to volatilise the calomel, and the tent should be kept closed about fifteen minutes. A very safe and satisfactory method in severe cases is to volatilise in an ordinary crib tent 15 grains every two hours for two days, and nights, then prolonging the intervals to three hours on the third day, four hours on the fourth day, fumigating three times a day thereafter according to indications (O'Dwyer). Attendants become easily salivated from inhaling calomel fumes, and must be cautioned. The room should be thoroughly aired after opening a tent. It is well, when circumstances permit, to fumigate in a separate room, removing the child and attendants to a fresh room while the other is freely aired. Now what effect has fumigation upon the patient, the child? It does not suffer ptyalism. Occasionally,

especially older children, after days of treatment have a mild stomatitis, sometimes diarrhœa. If the calomel is impure, there may be conjunctival irritation. Chemically pure calomel is essential. After prolonged use there is more or less anæmia. This must be combated by administration of iron, and if there is associated prostration a little whisky may be required before fumigation.

The above directions are quite in the line of moderation. Many physicians vaporise 20 to 40 or even 60 grains, and make the intervals in urgent cases no more than half an hour at first. Such practice is considered safe and justifiable, but symptoms of prostration and anæmia are likely to appear after a few days. It is a desperate disease, and warrants heroic treatment. I am not one of those who urge calomel fumigations in all diphtheria cases as a prophylactic, not one of those who think they know how it acts; but I am of the number who believe it affords relief from the urgent symptoms many times when no other medication will, and helps the patient to survive the stress without operative procedure. To this intent I employ it, to this extent I recommend it.—*British Medical Journal*, December 29, 1894, p. 1475.

7.—THE PATHOLOGY OF INFANTILE SCURVY IN ITS RELATION TO RICKETS.

By THOMAS BARLOW, M.D., F.R.C.P., Physician to
University College Hospital.

[Dr. Barlow discusses the pathology of the disorder in his Bradshaw Lecture as follows:]

The essential lesion is a subperiosteal blood extravasation, with its secondary consequences. Thus, around the shaft of the femur there is an extensive sheath of blood-clot, which intervenes between the periosteum and the shaft, except for a short distance at the upper extremity. A fracture had occurred through the junction area, between the lower epiphysis and the shaft. The surfaces were rough but not splintered. There was evidence of rickets in the loose spongioid ossification of this region and also in the diffuse ossifying centre of the lower epiphysis. The periosteum was intensely vascular, but there was no lymph or pus. In the muscles of the thigh the superficial layers contained a certain amount of pale yellow blood serum, which to some extent macerated the muscular tissue. In the deeper layers there was extensive blood-clot, pretty evenly disseminated. The periosteum of the right tibia was

also thickened and vascular. There was blood extravasation between it and the shaft along the whole length. Fracture was present in the loose, imperfectly ossified region connecting the shaft with the epiphysis. The trabecular structure in the interior of the bone broke down easily, and there was much hemorrhage in the medulla of the shaft. The ossifying centre of the epiphysis and the loose ossification in the junction area resembled what was found in the femur. There was extensive blood extravasation in the deeper layers of the muscles of the leg. The periosteum of the fibula was only slightly detached, but it was very vascular, and there was slight extravasation near the extremities. The bones of the other side were similarly affected, though not quite to an equal amount. The scapulæ were very interesting. They showed extensive blood extravasations on both dorsal and ventral surfaces. The dorsal extravasations associated with muscular extravasations had given rise to swellings which had been obvious during life. On the ventral surface the upraised periosteum had deposited a thin, new layer of osseous material, in this respect resembling the bony sheath which had been felt during life, in the middle stage of the recovering cases, on the shafts of the lower limb bones. The humerus in this case showed no subperiosteal effusion, but in addition to the evidences of spongioid ossification revealed extensive hemorrhage into the medulla. I may refer to the condition of the ribs in another case. The periosteum was found extensively detached, with much chocolate-coloured detritus of broken-down blood-clot between the periosteum and the rib. The ribs themselves were quite bare and were broken away close to the junction region with the costal cartilages. On section of the ribs it was found that the bony material was a mere shell, and there was an extensive endosteal extravasation. The cranium showed thin areas of subperiosteal hemorrhage in the neighbourhood of porous bone on both parietals. There were extensive blood and serum extravasations in the thigh muscles, the muscles being wasted, and subperiosteal extravasations were found in connection with the innominate bone and the femora. The other case here illustrated showed changes almost identical with those which I have described. I need not further particularise them, but will only mention two points of interest. Although there was no fluid effusion into any joint, there was a minute extravasation into the synovial membrane of one hip-joint.

Microscopical examination of the bones confirmed the naked-eye appearances. The periosteum was vascular and thickened, but without cellular infiltration. The bone presented extensive absorption of trabecular structure, showing large spaces with eroded margins, and at the junction regions characteristic

rickety ossification. The visceral changes were not very important. In one case there was blood-stained serous effusion in one pleura, with extensive petechiæ on the parietal pleura; in another there was a hemorrhagic focus in one lung with a little lymph over it; in a third there was some splenic enlargement, with blood extravasation under the capsule, and with some also into the substance. In the light of these anatomical substrata, we are now able to explain many of the symptoms which I have described. The special characters of the lower limb swelling—namely, the deep thickening referred to in the neighbourhood of the bone shaft,—the solid effusion into the muscular masses, the exquisite tenderness, the pseudo-paralysis, and the absence of local heat or redness are all in harmony with the conditions found post-mortem. The absence of any true inflammatory sign is in harmony with the general absence of persistent pyrexia. The occasional moderate elevation of temperature may well be explained by the tension set up by the blood effusion beneath a rather resisting membrane. The anæmia, which becomes so profound after the onset and which is increased after each fresh involvement of a limb or portion of a limb, is explained by the successive internal hemorrhages, which are just as much an impoverishment as if the blood had been discharged from the body. The fractures are not difficult to understand when we consider not only the lack of support outside the shaft in consequence of the stripping up of periosteum, but also in the advanced cases the hemorrhage into the centre of the shaft with the extensive absorption of trabecular structure. In no bones is this internal absorption, combined with extravasation outside and inside, carried to a greater degree than in the ribs, and this explains the extraordinary deformity of the chest to which I have referred, which deformity when it occurs is almost pathognomonic of the disease in question. The irregular bony sheaths round the long bone, felt during the middle stage of recovery of the severe cases, are due to the osseous material which has been thrown out by the upraised periosteum, and are analogous to what is found round the base of a recovering cephalhæmatoma.

The extremely interesting changes which I have already described are explained thus. The periosteum which lines the under surface of the roof of the orbit is even in the normal condition very loosely attached to the bone. The proptosis which occurs in the disease in question is caused by a blood extravasation into this easily distended space between the roof of the orbit and its periosteum. The eyeball is pushed downwards and forwards, and the upper lid becomes tense and bulged and sometimes a little discoloured. The swellings on the cranium are due to blood extravasations, especially in connection

with portions of bone previously more vascular than normal owing to pre-existing rickety deposit. Thus far we are on safe ground, and there can be little difference of opinion as to the anatomical conditions found and their relation to the symptoms observed ; but when we go a step further, and inquire as to the true nature of this disease and its etiology, there is room for great divergence of opinion. First, as to the question of rickets. The doctrine held by many German authorities that these cases were examples of acute rickets was formulated without adequate post-mortem evidence, and it was obviously unsatisfactory. Clinically, it is true that in the great majority antecedent rickets is shown by beaded ribs, large epiphyses, and delayed teething. Two manifestations of rickets—namely, marked head sweating and laryngismus stridulus—are often present throughout the course of the disease now under consideration. Moreover, after the subsidence of the special group of symptoms which I have described there are in a large number of cases persistent signs of rickets, which run the ordinary, typical, somewhat protracted stages of that malady. In the specimens portrayed there is evidence of a definite amount of rickety change in the spongioid ossification in the epiphysial junction region. But Sir William Jenner, to whom I showed these specimens, told me that in the very large number of cases of rickets investigated by him in years past he had never seen any such condition as the hemorrhages here present. Nor have I been able to find in any of the pathological accounts of rickets any record of such a condition. But although in these specimens there is a tangible amount of rickets present, yet in some milder cases which have recovered the amount of rickets clinically evident has gone to the vanishing point, and in some cases it has been impossible to say clinically that rickets was present at all. Let us further note that cases of very aggravated and progressive rickets, which are occasionally met with, in which there is excessive bony deformity, with multiple fractures, or with extreme bone softening, do not present, in spite of cachexia during life, the symptoms which I have described, or post-mortem the hemorrhages here shown. This was a difficulty quite recognised by the German writers, who wrote with inadequate knowledge of the post-mortem conditions, and they drew the distinction between *acute rickets* and *severe rickets*. It is clear that the phenomena of our disease and those of rickets, as commonly understood, though often coexistent, do not present what logical writers describe as concomitant variations.

As to congenital syphilis, in a very few cases an early history compatible with that disease was obtained, but no conclusive sign of active syphilis was noted during the course of the malady

in question, nor was any syphilitic lesion found post-mortem. The course of the limb affection, even with the pseudo-paralysis and the deep thickening, is quite distinct, clinically and pathologically, from that of any syphilitic bone disease with which we are acquainted. Though in a vague, indeterminate way some of these cases have been reported as infantile rheumatism, study of the descriptions given has shown that the joints proper were not invaded. This negative feature and the freedom from heart affection are adequate practical reasons for dismissing rheumatism as a factor in our disease.

Passing to other structures, hemorrhages and serous exudations into the muscular masses and the consecutive wasting of the muscles are characteristic. Moreover, the scanty internal hemorrhagic lesions which I have described, as far as they go, agree with what has been found in scurvy. The great pallor and the muddy tint, probably due to reabsorption of altered hemoglobin, are also common to our disease and to typical scurvy. Finally, with respect to the gums, we may classify the infantile cases into those which have limb symptoms with spongy gums, and those which have limb symptoms without spongy gums, and we have found that the state of spongy gums is practically conditioned by the presence of teeth. If there are several teeth the sponginess is efflorescent, and in the severe cases the fœtor, the bleeding, and the protruding tumours are indistinguishable from what we find in typical scurvy. If there are no teeth there is no sponginess, though there may be found on careful inspection minute ecchymoses. Now the greatest stress has been laid upon the gum condition in adult scurvy; but there is abundant evidence that a toothless man may present the limb weakness, the cachexia, and anæmia, and yet show no sponginess of gum whatever. In mild cases of land scurvy also it is constantly observed that the sponginess is limited strictly to the neighbourhood of those teeth which remain; and if there be large intervals where the teeth have been lost no sponginess appears in those intervals. I may here refer to a series of five cases which have been under my observation at different periods, but which in age were beyond the limit of infancy. In these five cases—children from two to ten years of age—there was undoubted scurvy, produced, I believe, by a curious hysterical antipathy to vegetables and meat. The gum affection was generally more severe than that of the infantile cases above described. The limb affection resembled that of the infant cases, but was less severe. The study of these cases occurring in childhood shows, I believe, a middle term (so far as the symptoms are concerned) between the infantile group and adult scurvy. The inverse relation to which I have referred is reasonable when we consider the physiological differences which

exist. Before the eruption of the teeth there is a much smaller aggregate of blood-vessels and blood supply, and much less liability to attrition than at a later period, when every tooth means the presence of a large leash of vessels. The physiological activity of every part of the growing bones of an infant is one of the most striking features of its physical life. This activity is modified apparently in the most rapid and subtle way by changes of general nutrition, and if there has already been induced a condition of rickets, with the alterations in the epiphysial line and in the periosteum which are characteristic of that disease, there is manifestly a prepared soil on which, if an adequate blood alteration is forthcoming, hemorrhagic lesions can develop. Let me state it in another way. Rickets, *per se*, as I have already said, does not (so far as our experience goes) lead to these hemorrhages. If it were so, considering how common a disease rickets is, surely these hemorrhagic cases would be more frequently met with. Scurvy, we know from experience, in adults is adequate to the production of such hemorrhagic lesions. If, then, in our infantile cases the blood change due to scurvy comes into operation, the rickety change already present may act as a physiological determinant of the sites in which scurvy becomes manifest.—*The Lancet*, November 10, 1894, p. 1076.

8.—THE CLINICAL MANIFESTATIONS OF INFANTILE SCURVY AND ITS RELATION TO RICKETS.

By THOMAS BARLOW, M.D., F.R.C.P., Physician to University College Hospital.

[The following is that part of Dr. Barlow's Bradshaw Lecture (1894) which deals with the clinical side of the question of the relation of Infantile Scurvy to Rickets :]

The group of symptoms to which attention is called has generally a rather sudden onset, beginning at any period after the age of four months, but predominantly in what may be called the second period of infancy—that is to say, from the age of nine months to that of eighteen months. The child is generally rickety, but fairly clothed so far as subcutaneous fat is concerned. There may have been antecedent digestive troubles, or, on the other hand, in respect to obvious symptoms little to show; but a careful observer will have noticed a certain amount of pallor. Suddenly, without obvious cause, the child becomes fretful in a special way. So long as it is left alone it is tolerably quiet. The lower limbs are kept drawn up and still,

but when placed in its bath or otherwise moved there is continuous crying, and it soon becomes clear that the pain is connected with the lower limbs. At this period the upper limbs may be touched with impunity, but any attempt to move the legs or thighs gives rise to screams. Next, some obscure swelling may be detected, first on one lower limb, then on the other, though it is not absolutely symmetrical. The skin still remains pale, and there are no local heat and no pitting. The swelling is ill-defined, but is suggestive of thickening round the shafts of the bones, beginning above the epiphysial junctions. Gradually the bulk of the limbs affected becomes visibly increased. No fluctuation can be obtained but a little œdema may now appear on the feet. The position of the limbs becomes somewhat different from what it was at the outset. Instead of being flexed they lie everted and immobile, in a state of pseudo-paralysis. The knee-jerks may be obtained, and likewise the plantar reflexes. About this time, if not before, great weakness of the back becomes manifest. A little swelling of one or both scapulæ may appear, and the upper limbs may show changes. These are rarely so considerable as the alterations in the lower limbs. There may be swelling above the wrists, extending for a short distance up the forearm, and some swelling in the neighbourhood of the epiphyses of the humerus. There is symmetry of lesions, but it is not absolute ; and the limb affection is generally consecutive, though the involvement of one limb follows very closely upon another. The joints are free. In severe cases another symptom may now be found—namely, crepitus in the regions adjacent to the junctions of the shafts with the epiphyses. The upper and lower extremities of the femur and the upper extremity of the tibia are the common sites of such fractures ; but the upper end of the humerus may also be so affected. Rarely a fracture occurs in the femur at some distance from the epiphyses. A very startling appearance may be observed at this period in the front of the chest. The sternum, with the adjacent costal cartilages and a small portion of the contiguous ribs, seems to have sunk bodily back, *en bloc*, as though it had been subjected to some violence, which had fractured several ribs in front and driven them back. Occasionally thickenings of varying extent may be found on the exterior of the vault of the skull, or even on some of the bones of the face. There is great tenderness, but, as with the other lesions, there is no local heat, and there is seldom change of colour. Here also must be mentioned a remarkable eye phenomenon. There develops a rather sudden proptosis of one eyeball, with puffiness and very slight staining of the upper lid. Within a day or two the other eye presents similar appearances, though they may be of less

severity. The ocular conjunctiva may show a little ecchymosis or may be quite free. With respect to the constitutional symptoms accompanying the above series of events, the most important feature is the profound anæmia which is developed. Whatever there may have been at the onset, when once the limb affection has become pronounced the pallor becomes intensified. The anæmia is proportional to the amount of limb involvement. As the case proceeds there is a certain earthy-coloured or sallow tint, which is noteworthy in severe cases, and, when once this is established, bruise-like ecchymoses may appear, and more rarely small purpuræ. Emaciation is not a marked feature, but asthenia is extreme and suggestive of muscular failure. The temperature is very erratic; it is often raised for a day or two when successive limbs are involved, especially during the tense stage, but is rarely above 101° or 102° F. At other times it may be normal or subnormal.

The condition of the gums is very important. Defective observation on this point has led to frequent misconceptions as to the nature of the disease. Stated generally, the gum condition may be said to bear a definite relation to the number of teeth which have appeared. If several teeth have appeared, considerable sponginess of the gums may be manifest. Fleishy swellings form, which even project from the mouth, and give rise to bleeding and fœtor. But if only a few teeth have appeared the sponginess may be slight though definite, forming a narrow, fleshy ridge round each tooth. If no teeth have appeared the gums may be normal, or may present small, bluish extravasations over the sites of the on-coming teeth. The condition of the gums sometimes gives rise to trouble in feeding. Occasionally there is nose bleeding. As a rule the appetite is fair; sometimes it is ravenous. There is seldom vomiting or diarrhœa, but a few cases have been recorded of blood in small quantities being passed per anum. The urine often contains a trace of albumen and a little blood. It is sometimes scanty in amount, and coarse concretions of uric acid may be passed. In rare cases the spleen is a little enlarged. Except in fatal cases the heart and lungs give rise to no symptoms. What is the course of this disease? If the cachexia is very profound the supervention of bronchitis, pleuro-pneumonia, severe diarrhœa, or an intercurrent exanthem may bring about a fatal issue. It is sometimes a relapsing disease, and may run a chronic course over many months; but the average duration, when uninfluenced by treatment, is from two to four months.

The chief interest of the disease turns on the limb affection, and its progress I will follow with a little more detail. First, with regard to the cases in which no fractures are detected. By slow degrees the swelling subsides, and with it the tenderness

lessens. There is considerable wasting of the muscles, and it becomes evident now that there is a sheath of firm, resisting tissue round part of the bone shaft which has been chiefly affected. This is most commonly found round part of the femur, but may be traced round part of the tibia also. Such sheaths, although often found in both lower limbs, are not generally of equal extent on the two sides. It may take months before these osseous sheaths are absorbed. By degrees voluntary mobility is restored, and the child also begins to raise itself from the horizontal posture. In the cases in which fractures occur near the epiphysial junction there is satisfactory repair, with little or no deformity. The same may be stated with respect to the ribs. In the rarer event, when the fracture occurs in the middle of the shaft, there is often an extensive callus, with some deformity. The anæmia, the hemorrhages, the asthenia, and the pain subside *pari passu* with the clearing up of the limb affection.

With what known disease, then, does the group under consideration present most affinities? I submit that it presents most affinities with scurvy. The bone lesions which I have described have been found in scurvy, especially in young adults and adolescents. The special forms of fracture in the neighbourhood of the epiphyses have been described as occurring in young scorbutic subjects as far back as the time of Poupert. The special fractures of ribs, in which the rib proper is separated away from the cartilage, have been repeatedly observed in adult scurvy. The subperiosteal hemorrhages, again, have been found. They are graphically described by our countryman Lind, whose work on scurvy was the pioneer of modern knowledge of that disease. They have also been described by Budd. In the cases of scurvy which occurred during the siege of Paris several necropsies were made in which blood was found effused under the periosteum of the tibia. Endosteal blood extravasations have also been described, both in the long bones and in the ribs, and a rarifying osteitis, like that which I have mentioned, which doubtless greatly facilitated the proneness to fracture. The predominance of lower limb affection, however explained, is the same in our malady as in adult scurvy.

Now let us inquire whether there is anything in the antecedent conditions of these children which brings them into line with those under which adult scurvy arises. What are the conditions under which adult scurvy arises? There are many predisposing circumstances of faulty hygiene, but surely there is a sufficiently conclusive experience that prolonged deprivation of fresh vegetables or their equivalents is the most constant fact amongst the antecedents of the disease. I have said

prolonged because it is clear that the organism has the power of drawing on its reserves for lengthened periods to meet the deprivation of a complete aliment; and I have used the phrase "fresh vegetables or their equivalents" because we now know that fresh uncooked meat and fresh milk are antiscorbutic, as well as, though perhaps not in so rapid a way, fresh vegetables and fresh fruit juices. Looked at as antiscorbutics, probably much larger quantities of fresh uncooked meat and fresh milk are needed than fresh vegetables and fresh fruit juices. The chemistry of scurvy is still an unsolved problem—or perhaps I should say an incompletely solved problem, for, thanks to the labours of Garrod, Ralfe, and others, we know that there is a diminished alkalinity of blood, and probably some fault in the presentment of the saline constituents of the food and in the facility with which they part with their bases. But the problem is possibly biological as well as chemical. It seems fair to say that the further we get from a living food the less is the antiscorbutic power. Fresh vegetables are more powerful antiscorbutics than preserved or cooked vegetables. Raw meat is more anti-scorbutic than cooked meat, and raw meat juice than beef-tea. I suspect it will ultimately be found that raw, uncooked milk is more antiscorbutic than cooked milk. What is there, then, in common between the antecedents of our infantile patients and those of recognised scurvy? So far as faulty hygiene is concerned there is little in common. The majority of the infantile cases have been found in healthy homes and amongst good surroundings. Let us turn to the question of food. In the group which I have described, in no single case at the time of onset of the malady has the child been breast-fed. In the great majority, where complete details have been obtained, these infants are found to have been nourished on what may be called "preserved foods." In the front rank come the various proprietary infant foods, prepared by the addition of water to certain powders. Then come the different forms of condensed milk and the proprietary foods made with condensed milk. Then come cases in which, either accompanied by proprietary food or not, fresh milk has been given, but with extreme dilution, during the later stages of infancy. Now let it be assumed, for the sake of argument, that such a diet as I have described is a scorbutic diet, and that an infant presenting the symptoms described is at the time being fed on this diet. The obvious test of the reasonableness of the scorbutic hypothesis is to alter the food in the antiscorbutic direction and note the results. For the condensed milk let fresh cow's milk be substituted. For extremely diluted cow's milk let undiluted fresh cow's milk be substituted, as, for example, a full pint for a child six months old. Instead of the proprietary food let some sieved

potato be mixed with the milk every day, and a tablespoonful of meat juice or gravy likewise. Finally, let a tablespoonful of orange juice or grape juice be administered every day in divided doses, mixed with water as required. And what is the result of these very simple alterations? The result in two or three days is startling. As a rule the food is taken greedily and without digestive disturbance. The child becomes much more contented, the tenderness of the limbs rapidly diminishes, the sponginess of the gums almost immediately recedes, the pallor becomes notably less, if there has been any renal hemorrhage it ceases, fresh ecchymoses rarely appear.

It is clear that the progress of the disease is definitely arrested. So far as the local treatment of the limbs is concerned nothing is essential but the maintenance of rest in the horizontal position; and this meets another indication—namely, to prevent possible heart failure consequent upon the extreme anæmia and fatty degeneration. Experience has abundantly shown that the blood tonics, such as iron, arsenic, and phosphorus, are useless if the proper change is not made in the diet, and if the proper change is made they are scarcely necessary; although fresh air and sunshine will not prevent the oncoming of the disease, they probably aid recovery when the food change has been effected. It is occasionally found that after the scorbutic need has been satisfied, and the cachexia has subsided, the child is no longer able to assimilate the large quantities of vegetable material and fresh undiluted cow's milk which at the beginning of the treatment were taken with avidity and digested. This also is parallel with what has been found in the treatment of adult scurvy.—*The Lancet*, November 10, 1894, p. 1075.

9.—ON DIET IN TYPHOID FEVER.

By CHARLES W. DULLES, M.D., Philadelphia.

[The following excerpt is taken from an important paper on "The Treatment of Typhoid Fever":]

The principles of the treatment of typhoid fever may be summarised as consisting in (1) Careful maintenance of the natural processes of excretion; (2) the judicious administration of food; (3) moderate regulation of temperature; (4) medication reduced to the lowest possible point and shaped to meet definite indications. The teachings of physiology and of ordinary common sense are opposed to the introduction into the alimentary canal of a sick person of more food than he can either appropriate or cast out. A healthy person can dispose of a large excess of unneeded ingesta, but a patient with typhoid fever cannot.

I am sure I have seen patients killed and others nearly killed by relentless feeding, practised by physicians who have, without judgment, followed the teachings of writers who advocate what is called "regular" feeding, and especially with milk-food, in typhoid fever. Forcing patients to take measured quantities of milk at short intervals sometimes results in a diarrhœa which shows that Nature repudiates the imposition—the stools resembling those of sick, milk-fed infants. At other times, when milk is given, the milk-water and salts are absorbed while the casein remains undigested and accumulates in the lower bowel, until a condition of coprostasis is set up, in which the patient is subjected to the dangers of total obstruction to elimination from the bowels and to horrible pains and violence when the mass of solid fæces is finally expelled by an act of Nature or by the stimulation of cathartics.

An error of another sort is committed when certain extracts of beef are administered with the idea that they are highly nutritious. To support this belief there are, I think only an untenable theory and deductions which the facts do not warrant. I feel sure that the advantage to patients of preparations such as Valentine's meat-juice is chiefly that they are so costly that not much is likely to be given, and that they contain so little tissue-building material that they do not oppress the digestion or overload the intestinal canal. Such food probably contains, bulk for bulk, less tissue-building material than is found in the white of a chicken's egg, and is equally innocent. Beef-tea is now generally recognised as a substance which is useful for the same reason, namely, that it does not burden the intestinal canal, while it gives both patient and friends a sense of security which is very desirable in all medical cases. This suggests what I believe is one of the most important points in the management of typhoid fever cases, namely, that they should be given as little food as possible—not as much as can be forced down them.

My own rule—which I have found has been that of others—in almost all cases of sickness, in young and old, is to say that patients may eat when they wish to, and go without eating when they have no desire for food. I let them drink all they want to, and give them food which shall resemble as little as possible those trying things that remind a patient of his sickness. I give a list of permissible foods, and tell the nurse or members of the family to get up a little meal for a patient who is conscious enough to appreciate it. I sanction the use of the albumin-water already referred to (cool water in which the white of an egg has been stirred up, with the addition of some pleasant flavour), and of almost all clear soups as they are prepared for well persons. I give milk, plain or peptonised, or

made more palatable and less constipating by the addition to it of some good preparation of cocoa. I allow tea and coffee, with plenty of cream and milk, which often do good, and which I have never known to do harm if used with ordinary judgment. I have no fear of eggs and give them whenever a patient with typhoid fever or any other fever wishes them, either soft-boiled or shirred.

Besides this, if I have a patient whose bowels are acting nicely I give custards and simple corn-starch preparations. A patient who can digest anything can digest these foods; and a patient who cannot digest anything will not want anything to eat; and, according to my views, he will require nothing but albumin-water and thin soups.

When we recall, on the one hand, the fact that persons making more or less constant exertions have gone for weeks without food and without serious impairment to their health, and, on the other hand, that fevered intestines are in no condition to do much in the way of digestion, and are capable of taking up only foods which contain finely divided or soluble hydrocarbonaceous substances and albuminoids that make their way through the intestinal walls without digestion, we can, I think, understand that not much food is needed to keep fever-patients from starving, and that this food should be of the very simplest character.

Further, when we reflect that perforation of the bowels is most likely to occur when the bowels are obstructed and distended with gas, and that this accident does not result from the unimpeded movement of soft fæcal matter, but that the intestines are rather advantaged by the internal drainage which such a process secures, we can understand that, while the bowels are not constipated but moving freely, there is no need to restrict a patient to food like milk, which is almost entirely composed of water, and which has but little residue. Because I think this is true, I believe that typhoid fever patients who have reached the stage in which they feel an inclination for food may be allowed moderate quantities of any soft food, like thick soups (digestible of course), good fresh fish, and the soft part of oysters, with occasionally sweetbread or beef's tongue, with eggs, milk, and cream. Of vegetables, I think baked or mashed potatoes may be used, and rice and corn-starch preparations, with thoroughly boiled oatmeal and such things as spinach or well-boiled onions and very moderate quantities of toasted bread thoroughly softened with boiling hot water and seasoned, as well as soft milk toast. For relishes, cocoa, tea, and coffee may be used, and, for deserts, jellies, ice-cream, and orange-juice in moderate quantities.—*Medical News*, December 15, 1895, p. 652.

10.—A CASE OF IDIOPATHIC PERNICIOUS ANÆMIA, IN WHICH ARSENICAL PALSY HAD BEEN INDUCED TREATED BY BONE MARROW.

By ALFRED G. BARRS, M.D., F.R.C.P., Physician to the
General Infirmary at Leeds.

The following case of pernicious anæmia, although the only one in which bone marrow has been given under my personal observation, seems to me to be worthy of record at the present moment because it illustrates amongst other things how, in pernicious anæmia, arsenic, though given till arsenical palsy is induced, may fail entirely to affect the blood state, and how the blood state may be entirely removed and perchance cured by the administration of a hæmopoietic tissue, namely, bone marrow. For arsenic in efficient doses to fail to influence, to some extent at least, the course of pernicious idiopathic anæmia is, in my experience, quite exceptional. As a rule, its administration results in marked improvement if not actual cure for the time being, to be followed very soon by relapse, in which, strange to say, the drug frequently fails to be of the smallest benefit, and the patient ultimately succumbs to his disorder. This curious behaviour of arsenic seems to me to be quite characteristic of the disease; its failure in relapses is frequently as signal as its success in the first period of the disorder, in which, as I have said, it seems to effect a complete cure.

The patient whose case is narrated below was, when admitted to the infirmary, to all appearances at the point of death. It was consequently thought desirable to push the administration of arsenic, in spite of the constant vomiting which was such a marked feature of the case in its early stages, until large doses had been reached. This was done, until in a month, although the anæmia had not advanced, well-marked palsy was induced. Nervous manifestations are known to occur in pernicious anæmia. I have myself seen a case in which the knee-jerk was absent, and returned under treatment by arsenic, the patient making a complete recovery, only to relapse and die in a few months. There can be no doubt, I think, that the distribution and character of the palsy in the present case point clearly to the arsenic administered as its cause.

This case is the second I have seen in which arsenic given in medicinal doses has produced profound and long-standing palsy. The first will be found very briefly recorded in the *British Medical Journal* for 1893, vol. i, p. 239. The boy whose case is there given has not yet recovered the proper use of his limbs, and it is now fully two years since the arsenic was given which

produced his paralysis. Such disastrous results, although occurring with very great infrequency, must give us pause, and make us ever watchful for the earliest signs of arsenicism in cases in which large and increasing doses of the drug are being used.

In my own cases no warning of impending danger was given by the occurrence of gastro-intestinal irritation. The arsenic seemed to go direct to the nerves without affecting the stomach or intestine, much in the same way as alcohol will get to them without affecting the liver. I have now made it a rule to watch carefully the knee-jerk in all cases in which arsenic is being administered, as I believe the failure of this reflex to be a sure index of its deleterious effects upon the nervous system.

The administration of bone marrow in cases of anæmia was first suggested in this country by Dr. Dixon Mann. But it was not till Professor Fraser published his case in June of last year, that any example of idiopathic pernicious anæmia successfully treated by bone marrow had been recorded.

In what manner bone marrow or its extract after undergoing the process of digestion proceeds to effect the marked changes in the blood which are shown to have been effected in the cases recorded by Professor Fraser and myself, I am at a loss to explain, unless it be by assisting in the effort which the marrow, according to some recent observations of Dr. Muir, seem to make in pernicious anæmia to supply the deficiency of hæmocytes. I ought to mention that in October last I saw, with Mr. Kershaw, of Pudsey, a case of pernicious anæmia in which bone marrow failed to do good; and in November last Dr. Honeyburne, of Idle, asked me to see with him a patient suffering from profound idiopathic anæmia in which the marrow could not be taken. In the latter case the nature of the anæmia was not at all clear, the case being much complicated by a great enlargement of the liver and some enlargement of the spleen without leucocytosis.

W. R., aged 43, a miner, was admitted on April 21, 1894, and is still (November 6, 1894) in the infirmary. He was admitted with extreme pallor, feebleness, restlessness, insomnia, and at times much delirium. He presented no malarial or syphilitic taint, and there was no evidence of plumbism or other acquired toxæmia. During the twelve months before admission he had been unable to work through increasing feebleness, great shortness of breath on even quite trivial exertion, and vomiting. He stated that he had lost flesh, though he was still fairly stout, even to corpulency. He had never lost any blood. He was a short thick-set man, wellnourished, the subcutaneous fat being abundant. He looked profoundly ill. There was intense pallor of the whole surface, the colour of the skin being that of old wax. There was no jaundice. The mucous membranes were almost devoid of their natural blood tint. There was some cedema of the legs. The bones and joints presented no peculiarities. He was very restless, partly from great shortness of breath, and partly from mental disturbance. He was at times dull, stupid, and apathetic; at others

fretful, querulous, incoherent, and delirious. He was breathing 36 in the minute, and the smallest exertion, such as turning in bed increased the rate. The respiratory system was normal on physical examination. The pulse was 128, regular, small, easily compressible, and very feeble. There was visible pulsation in the neck. The cardiac impulse was very faint and quick. The apex beat was in the fifth interspace, 4 inches from the middle line; at the same point a well-marked systolic thrill could be felt. The cardiac dulness was not increased. A soft, systolic, blowing murmur was heard at the apex, base, and over the vessels of the neck, but not at the angle of the left scapula. Blood drawn from the finger looked pale to the naked eye. The red corpuscles were reduced to 18 per cent. There was marked poikilocytosis with a few megalocytes. The pupils were normal and active, and vision good. The discs were very pale. The remains of an extensive hemorrhage were seen in the right fundus, and of a much smaller one in the left. He made no complaint of headache, but his mental state was so dull and confused that it was very difficult to ascertain his subjective condition. The knee-jerk was present. The tongue was pale and dry. There was a great thirst, and appetite was bad. The breath was foul. He was quite unable to take food on account of almost constant vomiting. There was no hæmatemesis. The vomited matters contained free hydrochloric acid. There was obstinate constipation, and the abdomen was rather full. Nothing abnormal was found by physical examination. The urine was of a bright sherry colour (not dark) and clear, specific gravity 1018; it contained no albumen, no sugar, and no blood. He was at once ordered liquor arsenicalis in 10, t.d.s.; milk, champagne, and ice, and such other food as he could take.

The intention was to give arsenic in increasing doses, until a maximum dose, to be determined by his inability to take it was reached. In this way the drug was administered till May 25 (34 days), so far as vomiting would allow. The largest dose ever reached was one of 19 minims, and the largest quantity taken in any 24 hours was 75 minims. For 24 or 48 hours it would occasionally be impossible to give any arsenic whatever. It may be taken that the amount of arsenic given was always the largest his condition would permit.

In spite of these large doses, the drug made no very obvious effect upon his disease. From April 21 to May 25, during which time, as before said, he was taking arsenic with more or less regularity, there were periodic remissions of vomiting and delirium, but beyond this there was no amelioration in his fundamental condition. The blood count showed no material change, and his aspect and shortness of breath were in no degree improved. Delirium and restlessness were more or less constantly present.

On May 22 it was observed that he was almost completely helpless in his legs, and that the knee-jerk was gone. About this time a marked change was noticed in the colour of the skin, especially in the hands and feet. In addition to his original pallor, there was to be observed a very striking pigmentation of the skin, with small blackish-brown spots, not raised above the general level and quite smooth, except on the soles of the feet,

where the pigmentation was associated with much horny thickening of the surface affected. (He presented, in fact a very good example of hyperkeratosis and pigmentation due to arsenicism).

On May 25 the weakness of limbs was much more marked, and he was quite unable to feed himself, and standing was an impossibility. His colour had improved a little, and there had been no vomiting for three days ; 75 minims of liquor arsenicalis were being taken in twenty-four hours. On ophthalmoscopic examination, the hemorrhages seen on April 21, 1894, had disappeared ; the discs were very pale. A blood count was made, and the red cells found to be reduced to 18 per cent. of normal. The lower extremities were œdematous and the knee-jerks still absent. He complained of rather severe pains in the hands and feet, and there was some blunting of the tactile sense in the ends of the toes. The administration of arsenic was abandoned on this date, it being quite evident that multiple peripheral neuritis had been induced by it.

On June 4, the weakness was still extreme, and he was unable to sit up in bed on account of the uselessness of the trunk muscles. There had been no vomiting since May 24. He was ordered to take three ounces of fresh bone marrow daily.

On June 11 his appearance was much improved. The former dirty waxy colour of the skin had largely disappeared, and the mucous membranes had a distinct blood tinge in place of their former white colour. His mental colour was also more satisfactory.

The weakness of the limbs was unaltered, and the knee-jerk was still absent. There was marked wasting of the intrinsic muscles of the hands, with characteristic wrist and foot drop. Sensation was unimpaired, but he still complained of numbness and tingling in the fingers, and the calf and forearm muscles were very tender on squeezing. The pulse was 104 ; there was much beating in the neck, and the systolic murmur was still audible at the apex but not in the back. The blood examined on this date showed an increase of the red corpuscles to 30 per cent., and marked poikilocytosis.

On June 15 he described himself as feeling half as well again as he did on admission (April 21), and he certainly looked much better, owing mainly to marked increase in natural colour of the skin and mucous membranes. There was still pain in the limbs, and the paralytic condition was but little improved. The blood cells were found to have increased to 40 per cent., and the hemoglobin stood at 45 per cent.

On June 20 the general condition was still further improved, but the paralysis had not changed, and the knee-jerks were still absent. The blood count showed 56 per cent. of red corpuscles.

On June 27 the blood count showed 70 per cent. of red corpuscles. He had taken bone marrow daily without inconvenience and without impairing his appetite for ordinary food, which he was taking in abundance.

On July 4 there was still no improvement in the paralysis; the knee-jerks were still absent, and there was some pain in the limbs. The blood corpuscles had increased to 80 per cent.

On July 25 he was still taking the bone marrow. There was some improvement to be noticed in the condition of the limbs, and he could use his hands to feed himself for almost the first time since the end of May, though the hands were still "dropped," and the fingers flexed and crowded together; the knee-jerks were still absent; the blood count showed red corpuscles 95 per cent. of normal number.

On August 10 the blood showed a normal (100 per cent.) number of red corpuscles; the poikilocytosis had entirely disappeared, and for the first time the corpuscles formed good rouleaux. The arsenical pigmentation had almost disappeared, but there was no material improvement in the paralysis.

On August 27 all the muscles of the arms reacted to faradism, but the muscles of the legs did not react. With galvanism K. C. C. was more marked than A. C. C. in all the muscles of legs. The systolic *bruit* had disappeared and the blood count was quite normal.

On September 11 the patient was using his fingers much better than he had done, and they looked much less helpless. The knee-jerks were still absent. He could feed himself a little better, but was still quite unable to stand. The feet were still pointed, but the wrist drop had almost gone.

To-day (November 16, 1894) he is still quite helpless in his legs, the feet are pointed and the knee-jerks absent. The hands are more useful than they were, but they are still very weak and wasted. His aspect in all other respects is that of a robust healthy man, except that his rosy complexion is just a little child-like in character. The blood examined to-day looks perfectly natural, forms good rouleaux, and shows a normal number of red corpuscles of natural shape and colour. He is still taking the bone marrow.

The following is the method by which the marrow is prepared. Three ounces of fresh bone marrow (as much red as possible) are made up into a paste, with port wine 1 ounce, glycerine 1 ounce, and gelatine 5 drachms. A little care is required in making the paste, to keep the gelatine and the marrow sufficiently fluid for them to be thoroughly mixed. The gelatine should be soaked in sufficient water to soften it, and then should be melted with the glycerine, the mixture being kept in a mortar previously made hot with boiling water, while in another mortar,

made hot in a similar manner, the marrow and wine are mixed. Then the contents of the two mortars should be thoroughly incorporated and allowed to set. The hospital butcher seems to have no difficulty in supplying the marrow free from bone spicules.—*British Medical Journal*, February 16, 1895, p. 358.

11.—THE SUPRA-RENAL BODIES.

By H. D. ROLLESTON, M.A., M.D., F.R.C.P., Assistant Physician and Lecturer on Pathology at St. George's Hospital.

[In the Goulstonian Lectures on this interesting subject Dr. Rolleston, after describing the normal anatomy and histology of the supra-renal capsules, proceeded to detail the various morbid conditions by which they are attacked:]

Some degree of atrophy was normal in old age, but apart from this atrophy occurred occasionally earlier in life, and when extreme it was sometimes the cause of Addison's disease. In an examination of 1,050 bodies he had noticed atrophy under the age of 45 years on six occasions; in none of them was the atrophy so extreme—viz., to the size of peas—as had been described in some cases of Addison's disease; in none of these cases were the symptoms of Addison's disease present. Hemorrhage into the supra-renal bodies was occasionally spontaneous, but was more frequently traumatic. These hemorrhages were common in difficult labours. The after-result of such hemorrhages might possibly lead to atrophy of the organ. In wasting children the supra-renal bodies were extensively occupied by fat; they were more constantly affected than the liver. In stillborn children the amount of fat was very moderate; in infants dying from diseases other than marasmus the fatty change was never so marked as in marasmus. In 15 cases of marked lardaceous disease the supra-renal bodies were affected eight times. Cysts might be due to hemorrhages, to ecchinococci, or possibly to softening of adenomata, but were rare. Tubercle occurred comparatively often in the supra-renal bodies. In 1,050 necropsies death was found to be due to tubercle in some form or other in 131 cases, and in 18 of these caseous material was found in the supra-renal bodies. There seemed to be an immunity on the part of the supra-renal bodies from tubercle during the first years of life. Chronic tuberculosis always began in the medulla.

Adenomata were of two kinds:—(1) Small multiple yellowish nodules on the cortex composed of the cells of that region, showing marked fatty change; (2) large single tumours arising

from the cortex, magnified editions of the former. They had been called hyperplastic tumours, struma lipomatosa supra-renal, or supra-renal goitre. On the analogy of exophthalmic goitre symptoms might have been expected to be connected with these supra-renal adenomata. The extreme fatty change showed that they were probably inactive, and this, together with the apparent functional inactivity of the cortex from which they arose, accounted for the absence of any symptoms. Both sarcomata and carcinomata occurred primarily; the former were the commoner, and showed a marked tendency to the formation of hemorrhagic cysts and of necrosed areas. Supra-renal "rests" in the kidney might take on malignant growth, and thus give rise to a renal sarcoma. In the same way some primary sarcomata of the liver might be explained. Secondary carcinomata and sarcomata were occasionally found.

Physiology of the Supra-renal Bodies.—The earliest researches were those of Brown-Séquard. By removing the adrenal bodies and observation of the results he came to the following conclusions:—(1) That these organs are essential to life; (2) that they modified or destroyed a substance which otherwise transformed itself into pigment; (3) that when the organs were destroyed or removed this substance collected in the blood; (4) that removal was rapidly fatal, and that injection of the blood of an animal thus killed into a healthy animal led to symptoms like those of removal. The negative results sometimes obtained by ablation might have been due to a compensatory activity of accessory supra-renal bodies, which Stilling had shown underwent hypertrophy after removal of the main glands. Tizzoni regarded the supra-renal bodies as only of importance from their close relation to the sympathetic. Removal of the supra-renal bodies had been shown to produce a fatal toxæmia, which could be prevented by the injection of supra-renal extract. Injection of the blood of acapsulated animals into healthy ones gave rise to symptoms like those following removal. Animals from whom the supra-renal bodies had been removed showed rapid and persistent fatigue which had been compared to the asthenia of Addison's disease. Langlois and Abelous regarded the supra-renal capsules as active glands, producing an internal secretion, which antagonised toxic substances formed in the metabolism of the body. Ligature of the pedicle, including the vein, of the supra-renal bodies had been shown to be more fatal than ablation. Ligature abolished the functional activity of the glands, and gave rise to less damage to the adjacent sympathetic. If one supra-renal body was removed the other had been noticed to hypertrophy; if the remaining one was separated from its nervous connections and left *in situ* no bad results followed; if, however, the hypertrophied

organ was removed death resulted. Therefore, removal gave rise to symptoms from interference with the functions of the glands, not from concomitant isolation of the sympathetic. Schäfer and G. Oliver had injected supra-renal extract into animals. They had found : (1) A rise of blood pressure due to arterial constriction, best seen after section of the vagi, by which means the concomitant inhibition of the heart was prevented. The constriction was due to peripheral action, since it persisted after section of the spinal cord and nerves. This high blood pressure was not affected by stimulation of the depressor. The rise in blood pressure was transient. (2) Cardiac inhibition due to vagus stimulation ; stimulation of the cardiac muscle, leading after section of the vagi to acceleration and augmentation. (3) Paresis of voluntary muscles due to modification of muscular contraction akin to that produced by veratria, but not in any way analogous to the action of curare. Since this effect lasted longer than the cardio-vascular phenomena, the extract probably became stored up for some time in the muscles. (4) That the active principle of the extract is only present in the medulla, and not at all in the cortex. It had not been isolated.

Three deductions were possible from these researches : (1) that the supra-renal bodies had no proper function, and were only important from their close relation to the sympathetic ; (2) that these organs were *excretory* glands, removing pigment and toxins from the circulation ; (3) that they were *secretory* glands, providing an internal secretion which was of use in the economy. The evidence was sufficiently strong to show that the supra-renal bodies had some definite function.

Morbid Anatomy of Addison's Disease.—Addison originally described 11 cases, of which 6 were tuberculous, 1 of cirrhotic atrophy, in 3 cases malignant growths occupied the supra-renal bodies, and in 1 a nodule of carcinoma blocked up the supra-renal vein. Addison's views were quoted. The view of the unity of Addison's disease (Wilks) was that all genuine cases of Addison's disease were due to one and the same lesion of the supra-renal bodies : a chronic inflammation comparable to hepatic cirrhosis. Though Addison's disease was most commonly due to tuberculous disease of the adrenal bodies, well authenticated cases due to simple and cirrhotic atrophy had been recorded. The sympathetic in the neighbourhood of the adrenals was sometimes sclerosed, sometimes normal. Von Kahlden had described certain changes in the semilunar ganglia as of great importance in the causation of Addison's disease ; these, however, resembled those normally found in adults by Hale White. Cases had been recorded where the supra-renal bodies themselves were healthy, but where the sympathetic was involved in a mass of growth. The distribution

of cutaneous pigment in Addison's disease was described as an exaggeration of that normally met with. The pigment melanin was present in the stratum Malpighii of the epidermis and in "carrier cells" in the dermis. The carrier cells probably conveyed pigment from the blood-vessels to the epidermis; in Addison's disease this transference was exaggerated owing to functional changes in the vessels. Professor Delépine had suggested that melanin was normally the antecedent, not the derivative, of hæmoglobin. Pigmentation of mucous membranes was rarer, and was usually regarded as a more reliable sign of Addison's disease than cutaneous bronzing. Dixon Mann described the pigment as situated in the dermis, and not in the epithelial cells of mucous membrane, and pointed out that its occurrence depended on irritation.—*The Lancet*, March 23, 1895, p. 727.

The lecturer recalled the early view as to the absence or unimportance of any function of the supra-renal bodies. This negative view was the physiological basis for the *nervous* theory, which explained the connection between disease of the supra-renal bodies and the symptoms of Addison's disease by the secondary morbid lesions induced in the neighbouring semilunar ganglia and sympathetic. A modification of the earlier nervous theory was that there need not be any change in the adrenal bodies as long as there was some lesion of the sympathetic. Changes in the supra-renal bodies had even been thought to be trophic in nature and due to injury of the sympathetic. The lecturer said the nervous theory was untenable, since (1) in some cases of Addison's disease the abdominal sympathetic was normal, and (2) Addison's disease was occasionally due to simple atrophy of the supra-renal bodies without any inflammatory change around them. Moreover, chronic irritation of the abdominal sympathetic due to other causes, though associated with pigmentation, did not give rise to Addison's disease.

The theory of supra-renal inadequacy assumed functional activity on the part of these glands. Interference with this function led to an altered condition of the body fluids, including the blood; hence this theory might be called the *chemical* theory in contradistinction to the *nervous* one.

Destructive tuberculous lesions and atrophy of the supra-renal bodies were known to give rise to Addison's disease. But it might be objected: 1. That these bodies were sometimes extensively destroyed by tubercle or new growth without any symptoms of Addison's disease. In answer to this the lecturer said that in such cases the adrenal affection was usually part of advanced disease elsewhere which had killed the patient before

the symptoms of Addison's disease had had time to develop. In addition it was possible that compensatory hypertrophy of accessory supra-renal bodies might occur, and that thus supra-renal inadequacy was obviated. 2. That in cases of Addison's disease the supra-renal bodies were found to contain a comparatively small amount of caseous tubercle, perhaps less than in other cases where no symptoms had been present. In reply to this it might be urged that this failure in compensation might be due to inherent want of vitality, concomitant atrophy, or to pressure exerted by the tuberculous material on the efferent vessels of the organ, thus rendering the organ functionless. 3. That in some cases of Addison's disease the adrenal bodies were healthy, but that the sympathetic was involved in adhesions or growths, such as lymphadenoma. It was possible that here again the vessels of the supra-renal bodies were so interfered with that the organs were practically placed outside the circulation. The facts of morbid anatomy were compatible with the theory of supra-renal inadequacy. The question whether Addison's disease was a toxæmic condition could not be definitely answered in the affirmative, but from a comparison with other chronic auto-intoxications, such as uræmia, pernicious anæmia, and perhaps myxœdema, it appeared probable that it was so. Extended research into the properties of the urine was urgently needed to determine whether the urine in Addison's disease was more toxic than in health. Oliver and Schäfer had found that the urine of Addison's disease was not more toxic than ordinary urine. This observation militated against the view that Addison's disease was a toxæmia. The toxic condition of the blood in animals after removal of the supra-renal bodies, and the analogy with other diseases, suggested a toxic origin. For the present the question should remain open. The symptoms of Addison's disease could be explained as due to toxic influences. The extreme debility might be due to a poison like curare, the gastro-intestinal phenomena to an irritant poison, and the pigmentation to the constant influence of a toxic body on the sympathetic, leading to an altered condition of the walls of the vessels of the dermis, and thus to increased transference of pigment to the epidermis.

The lecturer then discussed the nature of the function of the supra-renal bodies. Were they excretory or secretory organs? McMunn's theory that they picked up effete blood pigment and removed it with its accompanying proteids from the blood was criticised. No accumulation of pigment had been found in the blood in Addison's disease, and as the result of experimental removal no such increase had been proved. There was no increase in the urinary pigments in Addison's disease. McMunn had laid stress on the presence of a pigment—urohæmatoporphyrin

—in the urine of Addison's disease, which he regarded as evidence that the supra-renal bodies were not discharging their pigment-metabolising function. This observer had, however, found urohæmatoporphyrin in the urine of enteric fever, measles, cirrhosis, &c., where the supra-renal bodies were not specially affected. This detracted considerably from the force of his argument. As a chemical body urohæmatoporphyrin did not exist; it had been shown to be a mixture of a larger quantity of hæmatoporphyrin and a smaller quantity of urobilin. Garrod had shown hæmatoporphyrin to be increased in tuberculous diseases; since Addison's disease was generally tuberculous, any increase of hæmatoporphyrin, if this did occur, would thus be accounted for. Moreover, hæmatoporphyrin was increased in amount in such various conditions as sulphonal poisoning, gout, phthisis, and pneumonia, and its presence had, therefore, no special significance. From these considerations it was highly improbable that the supra-renal bodies had any special action on effete blood pigment. The question whether toxic bodies were normally removed from the blood by the supra-renal bodies and rendered innocuous was then considered. If the supra-renal bodies were crushed and left to be absorbed *in situ* no toxic symptoms resulted; therefore they did not contain the poison they might be supposed to excrete. The toxæmia produced by experimental removal of the supra-renal bodies had been shown to be counteracted by the injection of supra-renal extract. If these organs excreted poisons of the same nature as those accumulating on their removal and thus producing toxic symptoms, injection of the extract would only intensify the existing toxæmia. Again, Abelous and Langlois found that experimental removal of the organs gave rise to a toxic effect analogous to that of curare, while Schäfer and Oliver had shown that the physiological effect of the extract was not at all comparable to that of curare. Therefore the body or bodies giving rise to a toxic condition of the blood in "acapsulated" animals were not the same as the active principles of supra-renal extract. There was, therefore, strong evidence that the supra-renal bodies did not remove effete blood pigment or excrete and metabolise toxins, and that their function was not excretory.

The theory that Addison's disease is due to inadequate secretion of the supra-renal bodies was strongly supported by the observations of Abelous and Langlois and Schäfer and Oliver. The latter observers had found that, while the healthy supra-renal bodies of man yielded an active extract, these organs in Addison's disease provided an extract which was absolutely inert. What was the method of action of this internal secretion? 1. It might possibly antagonise poisons resulting from the general metabolism of the body in two ways: (a) By exerting

a ferment-like action on and thus destroying it. If its active principle was a ferment, the activity of the extract would be destroyed by boiling. Moore had shown that, although long-continued boiling abolished the activity of the extract, boiling for some minutes did not have this effect. This view, therefore, was improbable. (b) By directly neutralising the toxic bodies in a manner analogous to the action of an alkali on an acid. Schäfer and Oliver's experiments showed that the extract had a definite physiological effect on healthy animals; hence the secretion did not act merely as a chemical antidote. To prove whether the extract had any action at all analogous to that of a chemical antidote, experiments like that of Buchner with tetanus toxin and antitoxin should be made. (2) The secretion might act as a stimulus to the various tissues of the body. The researches of Schäfer and Oliver were in favour of this view. This tonic influence might act—(a) By regulating their nutrition and activity and preventing the formation of any toxic bodies; or (b) By increasing the resistance and defensive powers of the tissues, including the white blood-corpuscles, so that they were then enabled to resist and to destroy the toxic bodies produced by the metabolism of the body. The later hypothesis was attractive, but as yet there was not sufficient evidence to warrant any definite opinion.

In conclusion, Addison's disease was due to inadequate supra-renal secretion, but whether the deficiency in this internal secretion allowed a toxic condition of the blood to develop, or whether it led to a general atony and apathy, could not be settled at the present stage of our knowledge.

The treatment of Addison's disease by supra-renal extract was yet in its infancy. Dr. G. Oliver had recorded two cases which had reacted in a satisfactory way, in that the pigmentation diminished, nausea disappeared, and weight was gained. The lecturer had had a case of Addison's disease under treatment since June, 1894; pigmentation remained, but nausea and languor had been relieved. It was important to ascertain the appropriate dose of the extract, otherwise, its therapeutic value might be discredited from the employment of inadequate quantities. Forty-four grains of the gland in the day were not an excessive dose, though this was about the weight of the medullary parts (the active portions) of both human supra-renals. Artificial gastric digestion did not impair the activity of the extract, so the administration by the mouth was physiologically correct. Dr. G. Oliver had suggested the therapeutic use of supra-renal extract as a hæmostatic in purpura, hæmophilia, &c., and in exophthalmic goitre, cyclic albuminuria, diabetes, and in the conditions of vaso-motorial paresis associated with the menopause.—*The Lancet*, March 30, 1895, p. 799.

12.—ACROMEGALY—TWO CASES, WITH REMARKS.

By GEO. R. MURRAY, B.A., M.B., M.R.C.P.

Cases of true acromegaly are rare, and only a small number of them have as yet been recorded in this country. Two cases which have come under my observation present certain features which are worthy of record.

Case 1.—T. W., aged 34, married, four years and a-half before he came under treatment, while at work in the gasworks, accidentally inhaled an overdose of coal gas and was unconscious for six hours. He recovered from the immediate effects of this, but had never felt quite well since. Six months later he began to have attacks of pain in the fingers, the proximal interphalangeal joints of the middle and ring fingers in each hand being chiefly affected. The pain sometimes lasted only a few minutes, at others as much as an hour, and at times extended up to the shoulder. For about two years the patient's friends had noticed that his face had altered in appearance owing to an increase in the size of the nose and sinking in of the cheeks. He thinks that possibly the hands had increased in size somewhat even before that time. He began to feel languid and disinclined to work. The feet also gradually increased in size, so that he was obliged to get larger and larger boots. It appears probable that he had syphilis seventeen years ago.

He complains of aching pains in the hands, worst at night and in damp weather. He has no headache, tinnitus, nor deafness. He is languid and disinclined to work, and would willingly lie in bed all day if he was not obliged to work for his living. The memory has failed somewhat, and his temper has become irritable. He complains of weakness of the legs, but the arms feel as strong as ever. All these symptoms improve very much when he becomes heated at his work as a fireman. His appearance is striking, and at once suggests the nature of the disease. The forehead is low and deeply wrinkled transversely. The margin of each orbit is prominent, and the palpebral fissure is narrow, giving the whole face an expression of great anxiety and depression of spirits. The nose is large and thickened in all dimensions. The lips are thick and heavy, the lower lip being more affected than the upper. The chin is wide and rather massive. The upper incisor teeth are separated from each other. When the mouth is closed the lower incisors project in front of the upper. The tongue and uvula are both distinctly enlarged, the ears are thickened, the hands are increased in size. The enlargement involves both hard and soft structures alike ; the consistence is firm, and there is no

“pitting” on pressure. The fingers are rather like sausages in shape, and the palms are broad. The thenar and hypothenar eminences are large and broad. The hands are closed with difficulty. If the fingers are extended after they have been flexed the middle finger of the left hand remains flexed till a few seconds have elapsed. The arms do not appear to be increased in size. The feet are considerably enlarged; this change is most marked in the first and second toes. The circumference of the neck has increased by 1 inch. The thyroid gland can be felt and is not diminished in size. An area of dulness can be detected over the upper part of the sternum. There is marked kyphosis in the upper dorsal region of the spine. There is some enlargement of the right clavicle and of the upper ribs on the same side. There is less perspiration now than there was formerly. The amount of urine is stated to be rather less than usual; the specific gravity is 1030. The urine does not contain albumen or sugar. Vision $\frac{6}{6}$ with difficulty. The fields of vision are slightly contracted above, due to the exaggerated prominence of the eyebrows and the swelling of the eyelids. On examination with the ophthalmoscope a linear streak of pigment is seen lying above a retinal vessel, which is probably the site of a hemorrhage. Nothing else of interest is to be seen.

Measurements of the Patient.

	Inches.
Length of hand from lower fold of wrist to end of middle finger	7 $\frac{1}{4}$
Length of middle finger from palmar fold at base	3 $\frac{1}{4}$
Dorsal length of middle finger from base of first phalanx.. ..	4 $\frac{1}{4}$
Palmar length of little finger	2 $\frac{1}{2}$
Circumference of hand (without thumb) at head of metacarpal bones	9
Circumference of middle finger	3 $\frac{1}{4}$
Circumference of thumb	3
Circumference of little finger	2 $\frac{3}{4}$
Circumference of wrist immediately below extremities of ulna and radius	7 $\frac{1}{2}$
Circumference of wrist at level of styloid process	7 $\frac{1}{2}$
Circumference of forearm at the middle	10
Circumference of arm at the middle	10
Length of nail of middle finger	5 $\frac{5}{8}$
Length of nail of thumb	3 $\frac{3}{4}$
Breadth of nail of middle finger.. .. .	3 $\frac{1}{4}$
Breadth of nail of thumb	7 $\frac{7}{8}$
Greatest length of foot	10
Circumference over heel and instep	13
Greatest circumference of foot	11 $\frac{1}{2}$
Greatest width of foot	4
Circumference of great toe	4 $\frac{1}{2}$
Circumference of little toe	2 $\frac{3}{4}$
Length from top of forehead to tip of chin	8 $\frac{1}{2}$
Length from top of forehead to upper part of nasal bones	2 $\frac{1}{2}$
Length from upper part of nasal bones to tip of nose	2 $\frac{1}{2}$
Greatest width of alæ nasi	2
Distance from tip of nose to point of junction with upper lip ..	1 $\frac{1}{4}$

For several weeks this patient was treated with thyroid extract and after three weeks the languor had diminished and the neuralgic pains had disappeared. These symptoms, however, returned afterwards while he was still taking the extract, so that it is doubtful if the temporary improvement was due to this remedy. Dr. Byrom Bramwell has also observed some improvement in the symptoms of one case of acromegaly while taking thyroid extract, though in another case the symptoms were aggravated, while the administration of pituitary extract was followed by improvement.

Case 2.—J. T., a widow, aged 34, who four years before she came under treatment first noticed that she was becoming “stout” and began to feel constantly languid and weary. In the morning there was often some swelling beneath the eyes. The face gradually altered in appearance as all the features became enlarged. The nose became larger and the lips thicker, and so great was the change that even friends who had not seen her for a time failed to recognise her again. The hands also increased in size and the skin became coarse. Not long afterwards a prominence appeared in the lower cervical region of the spine.

The patient complained of a pain in the head, which shot through it from the suboccipital region to the root of the nose, of a constant craving for food, and of excessive thirst. In appearance she was prematurely aged, and her face constantly wore an expression of anxiety and weariness.

All the features were large and coarse. The nose was notably enlarged and thickened. The brows were large and heavy, and the lips considerably thickened. The lower jaw did not appear to be larger than normal. The hands at once attracted attention by their large size. The enlargement was general and uniform, but the forearm did not show any increase in size. The shoulders were large and massive, and the muscles connected with the shoulder-joint unusually well developed. There was a distinct prominence of the spine in the lower cervical region, owing to a curve in the spine which had its concavity forwards. The upper ribs on the right side were unduly prominent, the second and third being distinctly larger and thicker than the corresponding ribs on the opposite side. The feet did not exhibit any special enlargement. The urine, passed in large quantities, had a specific gravity 1040, and contained a considerable amount of sugar. The pulse varied between 100 and 132; it was regular but feeble. No menstruation had occurred during the last two years. The defective sight was chiefly, if not entirely, due to errors of refraction. The pupils reacted sluggishly both to light and to accommodation. There was no defect of the field of vision. There was a slight peripheral

contraction of the field for green. On examination with the ophthalmoscope there was no evidence of optic nerve atrophy nor any abnormality to be observed. Dr. T. Coke Squance has kindly informed me that this patient subsequently died in the Sunderland Infirmary, pulmonary phthisis being the immediate cause of death. There was considerable hypertrophy of the pituitary gland; the thyroid gland was enlarged, and weighed nearly two ounces. The thymus was persistent and the left lobe hypertrophied.

In these two cases the symptoms of acromegaly were so well marked that the appearance of the face and hands at once indicated the nature of the disease. The two patients resembled each other very much in appearance and might have been taken for brother and sister. Cases of acromegaly frequently have a kind of family likeness to each other, as the changes which take place tend to obliterate the special characters of each feature of the face and so bring about a similarity to a common type. The improvement of the symptoms in the first case while the patient was at work in front of a hot fire is interesting, though I have not seen it mentioned in the description of any other case. Polyuria is not an unusual symptom in acromegaly, but the association of diabetes with acromegaly is not so common, though it has been noted twice by Marie and once by Strümpell. The enlargement of the pituitary, thyroid, and thymus glands in the second case is similar to that which has been described in other cases.—*British Medical Journal*, February 9, 1895, p. 293.

13.—SOME CASES OF GRAVES' DISEASE, SUCCEEDED BY THYROID ATROPHY.

By W. W. BALDWIN, M.D., Florence.

The case which I will first report seems unique, considering the youth of the patient and the comparatively rapid cycle of pathological change. The mother, a very poor but intelligent mountain peasant, brought her lad to me on July 26, 1893, "not on account of illness, but because he was good for nothing, and perhaps the doctor might be able to rouse him." The lad was one of the heaviest, dullest overgrown boys of ten years of age imaginable, mostly half asleep. He would doze off sitting or standing. His skin was pale, dry, and inelastic, the connective tissue under the eyes loose and baggy, the face broad and flattened, and the hands big and puffy. He had a large, pendulous double chin, his great mass of coarse coal-black hair was dry and brittle, and the cheeks were notably

scarlet, as though painted. The temperature was 97° F., the heart's action slow and lagging (55), its sounds were normal although its apex beat was displaced downwards and outwards about half an inch (the probable cause of this hypertrophy of the left ventricle will appear later), and the respiration was slow and deliberate. The liver and spleen were not enlarged, nor were any enlarged lymphatic glands discovered, although the boy was stripped and carefully examined from head to foot. The urine was normal. The appetite was moderate, there was no indigestion, and the bowels were regular. The mother related that several years previously he had suffered from palpitation and breathlessness, swelling of the neck, and prominence of the eyes, that he had also been extremely nervous and sleepless at that time, and it was thought he had heart disease. She "knew that he had been perfectly well until six years of age, and that he first began to swell and resemble the ox about two years ago." My friend, Dr. Milani, had seen this patient from time to time during the heart attack, and assured me that it had been a typical case of Graves' disease. Tablets of thyroid powder were now administered. It was found that four daily were well borne, but a larger dose caused palpitation and breathlessness. Strangely enough, the mother remarked when this occurred, "My boy acts just as he did when he had heart disease." The effect of this treatment was markedly favourable from the first, although the improvement was neither so rapid nor so brilliant as in some cases of uncomplicated myxœdema for which I had prescribed the same preparation. On September 18, he was more eager and alert, the general puffiness had almost disappeared, the pulse was 70, and the temperature 98°. The boy actually seemed a size smaller, and in March, 1894, seemed quite well.

On May 22, 1884, I was called to attend a tall, growing English schoolgirl fourteen years of age. I found her suffering from an acute attack of follicular tonsillitis, with great pain and difficulty in deglutition. This attack lasted until June 1, happily without suppuration, and the patient made a satisfactory recovery. I observed that while the temperature never rose above 103° F. the pulse varied between 140 and 160 until the febrile disturbance had subsided. From this time until June 12 the pulse varied between 100 and 120. It was then noted that the thyroid gland was moderately and symmetrically enlarged and the eyes rather prominent, but the upper lids could be voluntarily closed over the eyeballs in any position. There was no muscular tremor, but increased pulsation of the carotids was remarked. The diagnosis of Graves' disease presented no difficulty, and a course of galvanism to the cervical sympathetic was proposed in addition to other treatment, but the patient

left Florence, and I did not see her again for some time. The mother, whom I saw frequently, gave me accounts of the case which I noted down at the time. The daughter grew much worse in England, and seems to have passed through a period of great danger, coincident with the first climacteric, which lasted two years. Under skilful treatment, including galvanism, however, she gradually recovered, and in January, 1890, it was noted that all the symptoms of Graves' disease had finally disappeared. From this time until December, 1891, the patient gradually drifted into a condition which a leading London authority then pronounced to be true myxœdema. In January, 1893, treatment with fresh thyroid gland was undertaken, which has been brilliantly successful in relieving the symptoms, and the patient, by continuing to take an appropriate quantity of the above preparation, has remained comparatively well.

In June, 1887, I attended another schoolgirl fifteen years of age. She had menstruated irregularly for about six months, and previously to this period had always been well and strong. The thyroid gland was more enlarged and the eyes more prominent than in the case just mentioned, but the pulse was less frequent (90 to 100) and the nervous excitability not nearly so great. A certain coarse muscular tremor of the extremities was noted, and the patient complained of being unable to close the eyes when lying down, so that they were often very dry in the morning. It was found that she could not completely close the upper lids over the eyeballs looking down except by pushing them with the fingers. In this case of Graves' disease it was decided to prescribe galvanism of the cervical sympathetic every other day. The patient was instructed to lead a quiet, restful life and to avoid all excesses. This treatment was continued, with short intermissions, until October, 1888, when menstruation had become regularly established, and recovery from all the symptoms of Graves' disease had occurred. From this time, with the exception of an attack of peripheral facial paralysis (right) due to a chill, from which she also recovered, the patient's general health was remarkably good until November, 1893, when various anomalous symptoms were first noticed, but chiefly of sluggish circulation, mental hebetude, and intolerance of cold. There is no doubt that the thyroid gland had also been growing smaller. No treatment was then undertaken, as the patient left Florence for the winter. She consulted me again in October, 1894, and decided to undertake systematic treatment. There had been no rapid change during the year's absence, but all the symptoms were a shade more accentuated. The temperature, which had been normal in November, 1893, was now 97·4° F., the pulse had changed from 78 to 65, the skin was paler, drier, and less active, and the patient's whole appearance

was indescribably different. If I may be allowed the comparison, she seemed to have merged her former personality into that of a more placid, apathetic, and slightly larger twin sister. As the patient could not be persuaded to continue the fresh sheep's thyroid gland, first prescribed, however prepared, the five-grain tablets already mentioned, were prescribed. At first three tablets daily were given, cautiously increased to six, which dose it has not been necessary to increase. The effect was satisfactory from the very first, and the patient now (December 10, 1894) declares herself—and, indeed, appears in all respects—to be perfectly well. She is taking three tablets daily at present, and will remain under careful observation in future.

In June, 1892, a Swiss woman forty-four years of age consulted me. Until 1888 she had enjoyed robust health. At that time she suffered from a great mental shock, succeeded by grievous family complications, which had continued to distress her ever since. In 1889 menstruation became irregular and after a twelvemonth finally ceased. Shortly after the shock mentioned she began to suffer from palpitation, breathlessness, swelling of the neck, prominence of the eyes, great nervousness, and insomnia. These symptoms continued for some months after the final menstruation (May, 1890), but gradually disappeared. She had remarked that both before and after the climacteric all the symptoms were invariably aggravated for the first four or five days of the regular monthly time. Since then she had gradually lost control of her voice, which was sometimes fairly strong and clear, at other times muffled and indistinct, but always losing force. What chiefly distressed her, however, was inhibition of brain power and a sense of overpowering fatigue and melancholy. She slept fairly well, but was never refreshed thereby. There was lack of appetite, but digestion, although sluggish, was fairly good, and the bowels were always constipated. She suffered very much from the cold, and was invariably worse in cold weather. No organic lesions were discovered. The skin was pale, dry, and harsh; the hair was unusually thick, long, and lustrous, but latterly it had been falling out. She complained that the hands and feet were swollen at times, but this I did not observe. The tissue about the eyes was slightly swollen and the cheeks were pale. Her facial expression was notably anxious. The treatment prescribed consisted in attention to diet, regulation of the bowels, and the administration of hypophosphites of iron, strychnine, and quinine with arsenic. This treatment was continued, with intermissions, in Switzerland, where she spent the summer. She was distinctly better when I saw her again in the following November. During the winter, however, in spite of treatment,

all her symptoms became aggravated, and in June, 1893, she was distinctly worse than the year before, when I first saw her. Her appearance did not suggest myxœdema, and I could not satisfy myself that atrophy of the thyroid was present, but it was decided to make a cautious trial of the same tablets of compressed dry thyroid gland powder. At first three were given daily, being then increased one at a time to six tablets daily. The effect was simply amazing, and after a few weeks the patient expressed herself, and, indeed, seemed to be, perfectly well. One or two tablets daily have been taken since, and she remains in good health.—*The Lancet*, January 19, 1895, p. 145.

14.—THE TREATMENT OF OBSTINATE HICCOUGH.

By W. LANGFORD SYMES, L.R.C.P.I.

The treatment of obstinate hiccough will ever be a matter of extreme difficulty on account of the multiplicity of remedies. It might be advantageously divided into—(1) empirical; (2) antispasmodic; and (3) physiological. Under the first heading would come almost every known drug or household remedy, of which the most efficacious I have found to be—very frequent acts of swallowing saliva, sips of liquids, or spoonfuls of arrowroot, so as to prolong the act of deglutition, and thus exhaust the pneumogastric nerve. Raw whisky, vinegar, and “eau de melisse,” are frequently magic, also hot brandy-punch, or a mustard blister over the epigastrium.

Of antispasmodic remedies, chloral hydrate was used with success in the gouty example we have given, and might be replaced by such as nitrate of amyl, calabar bean, cocain, hydrocyanic acid, atropin, morphin, nicotin, conium or succinum. Leeches to the anus will greatly relieve the hemorrhoidal veins in visceral inflammations, and the application of six or eight to the epigastrium has frequently been of use in such complications. Combined with such general antiphlogistics, one must be guided by the particular organ implicated, as to his choice of other remedies. Hot fomentations of poppyheads, or laudanum, or a linctus of belladonna with glycerine, covered by warm poultices, and the subsequent application of a blister, constitute the external remedies which are calculated to relieve such states. The act of vomiting has suddenly checked instances of great persistence, and apomorphin injected hypodermically has similarly permanently relieved it.

The bowels should be freely relieved, when safe, by measures suitable to each individual case. Emollient injections, or a bland mixture of glycerine and castor oil given in warm milk,

as administered in fevers, being the most expedient in acute inflammatory affections of the intestine. When symptomatic fever runs high, the administration of tincture of aconite $\mathfrak{M}2$ in liquor ammoniæ acetatis every two hours, combined with some such antispasmodic as opium, morphin, cocain or belladonna, and the application of eight or twelve leeches, or an icebag, to the epigastrium or inflamed viscus, will most likely relieve the resulting hiccough. In that very rare disease, acute gastritis, sometimes met with in old men, or in the early stages of malignant disease, such a prescription as bismuth, carbonate of magnesia and cocain with prussic acid, will relieve the gastric irritation. When, however, there is other evidence of acute mechanical obstruction of the bowels, when ileus is likely or imminent, it is the indication for immediate operative interference. It should not, however, here be waited for, since many fatal obstructions have never presented it.

When a case of persistent hiccough presents itself unaccompanied by any visceral inflammation, high fever, or other acute illness, a careful examination should be made of every organ to seek some lurking cause of the irritation. Though such strange affections as dentition or pharyngeal abscess have produced it in this form, its source will most frequently be found in the digestive system. Particular attention should be paid to the conditions of health prior to the onset of the hiccough. In conditions of flatus and distension, when this appears the sole ailment, a free purge of castor-oil with turpentine will effectually clear the "primæ viæ," and would be a suitable antecedent to sedative and carminative remedies. If the flatus continues, a pill of carbolic acid, nux vomica, and iodoform might be prescribed twice a day, with such a mixture as the following, every two or three hours, as recommended by Dr. T. W. Allen:—℞. Olei succini, $\mathfrak{z}ss$; liquor potassæ, $\mathfrak{z}j$; tinct. camph. co., $\mathfrak{z}iv$; mist. acaciæ, $\mathfrak{z}ij$; aquæ menth. pip. ad, $\mathfrak{z}vj$; one-sixth part every two hours. Two doses usually succeed. Still failing relief, a powder of bismuth, magnesia, and cocain, should be taken in milk every third or fourth hour; or one composed of six grains of musk, with bicarbonate of soda and magnesia, which has been recently recorded as successful in a persistent case by Dr. Rattray. In the obstinate gouty instance alluded to, the combination of bromide, iodide, and bicarbonate of potassium, with chloral, successfully removed it. Quinine has cured a so-called malarial variety; and other cachexiæ will be found equally amenable to a carefully constructed and systematic treatment.

In the neurotic variety of persistent hiccough the most varied remedies have been successful, though it has sometimes continued unrelieved until the death of a patient from

exhaustion. Jaborandi and pilocarpine appear to have a specific influence over this form of the neurosis. They have frequently checked it permanently.

Nobel (*Centralblatt für klinische Medicin*, No. 32, 1892) refers to the marked benefit derived from the infusion of jaborandi administered to a man suffering from influenza. It produced some slight cyanosis, but appeared to have no further ill effect upon the heart. He declares it is still unknown to what ingredient its efficacy is due. Stiller, in the same journal, No. 42, states that he has frequently prescribed pilocarpine in doses of 10 minims of a 1 per cent. solution, three or four times a day, in hiccough of a nervous origin, and believes it is the best remedy known for this condition. It is, he says, unsuitable to attacks of the acute inflammatory type, and in hysterical instances is not so beneficial as in other forms. To pilocarpine he entirely attributes the specific influence of jaborandi. Dr. De Havilland Hall subsequently relates the success of one-tenth of a grain of pilocarpine injected hypodermically three times a day when other remedies had failed. The hiccough, which had been unremitting for a fortnight, at once lessened, and soon ceased entirely. The various forms of electricity should, in obstinate cases of this species, be tried. Asafoetida, combined with some of the carminatives or sedatives, has also been of great service. Ice to the epigastrium, blisters, and—recollecting in connection with the physiology of the pneumogastric nerve that cold shock has a marked influence over it, both in its pulmonary and gastric connections—in cases resulting from fright, shock, or sudden mental emotions, cold shower baths would be well calculated to arrest a spasm of this nature. In this connection two interesting remedies remain to be noticed. They are—pressure on nerve trunks and hypnotism. It was recently recorded that a hiccough of an obstinate character supervened in the case of a man who struck his head against a wall with some violence. Several remedies failed to relieve him, and his surgeon efficiently arrested it by pressing for some minutes upon his supraorbital nerve, with sufficient force to give him great pain. This has also been tried by M. Leloir, who states (*Revue des Malad. de l'Enfant*—March, 1892), that he stopped hiccough, in a child of 12, by digital pressure for three minutes on the phrenic nerve, between the two attachments of the sterno-mastoid. He says he has since used the method in a large number of cases, and always with success: in some for a few seconds, and others a few minutes.

The writer's experience of the phrenic nerve is, that it is misleading, that it has much less to do with the spasm than has been hitherto supposed, and that—granted even that it has been successful—pressure upon it will be scarcely more

efficacious than upon others, even so remote as the supra-orbital, the pneumogastric probably excepted. With regard to hypnotism, I believe it has never yet been tried, but from the undoubted influence, which we can now no longer veil with scepticism, that has been demonstrated to lie in the hands and the minds of skilled "operators" it might with all propriety be practised.—*Dublin Journal of Medical Science*, January, 1895, p. 30.

15.—HEMORRHAGIC DIPHTHERIA.

By HAROLD AUSTEN, M.D., B.S., Lond. ; and
HARRY COGILL, M.R.C.S., L.R.C.P., Assistant Medical Officers,
Western Fever Hospital.

During the years 1893-94 there have come under our care at the Western Fever Hospital, Fulham, a large number of cases of diphtheria which presented the symptom of hemorrhages into the skin and from the various mucous membranes.

The occurrence of cutaneous hemorrhages is of especial value as a prognostic sign in cases in which the issue is otherwise doubtful.

From January 1, 1893, to January 31, 1895, 880 cases of diphtheria have been treated at this hospital. Of these cases 58, or 6.59 per cent., presented cutaneous hemorrhages, all of which, with one doubtful exception, proved fatal. These 58 cases comprised 27 males and 31 females, at the following age periods :—0 to 5 years, 24 ; 5 to 10 years, 27 ; 10 to 15 years, 4 ; 29 years, 1 ; 41 years, 1 ; 65 years, 1.

Local Symptoms.—These were all cases easily recognised clinically as diphtheria from the presence of false membrane in considerable quantity, and acquired early a severe local character. In the majority of cases the false membranes, together with the surrounding and subjacent mucous membrane, became the seat of hemorrhages of greater or less extent, and soon underwent decomposition, in spite of energetic local treatment. All the cases presented membrane on the tonsils, uvula, and soft palate, while in addition 18 were laryngeal, 3 nasal, 2 glossal, and 2 nasal and laryngeal. Although so large a proportion presented laryngeal symptoms, the obstruction caused was only sufficiently severe to call for operative interference in 3 cases. All the cases had marked cervical adenitis, in many of great severity ; in only 1, however, did the inflammatory process lead to suppuration. Another symptom common to all was profuse rhinorrhœa, and albuminuria was present in every case in which examination could be made.

Eccymoses closely allied to ordinary traumatic bruises, varying in colour from a deep purple to a light green or brownish yellow. It was noticeable that the colour bore but little relation to the age of the ecchymoses, and gave a false impression of their duration to one not familiar with this characteristic. The shape was generally circular, with a tendency to oval elongation; the area from about 2 lines in diameter in the smallest to $1\frac{1}{2}$ inch in the largest. They were in some cases palpably raised, and numbered from 2 to 20. In 23 cases they occurred on the face, in 36 on the extremities, being, as a rule, more marked on the extensor surfaces, but not uncommon on the flexures, and in 43 cases on the trunk, the lumbar and sacral regions being the most common site.

Purpuric spots, varying from minute petechiæ to hemorrhages the size of a split pea. There were in some cases almost innumerable, in others not more than half a dozen were present. In 23 cases they were noted on the trunk, in 9 on the extremities, and in 1 case on the face. Unlike the ecchymoses, they showed a preference for the flexor surfaces.

These two varieties were not uncommonly combined in the same case, this occurring in 16, while in 25 cases ecchymoses alone occurred, and in 16 purpura. In 1 case the character was not defined.

Hemorrhages from Mucous Membranes.—Epistaxis, generally of a severe character, occurred in 18 cases. Hæmatemesis (excluding cases in which this symptom depended on swallowing blood from nose), 10 cases. Melæna was only noted in 2 cases, but it is probable that a few more escaped observation. Hæmaturia did not occur.

Apart from the invariably fatal termination of these cases, they presented no absolutely distinctive characters other than those already noticed. They early manifested the toxic effects produced by the disease: extreme pallor, a quiet but very sleepless condition, without seeming discomfort. The temperature was but seldom raised much above normal, and almost invariably subnormal for the last few days of life. Vomiting was a marked symptom in nearly all, the power of the heart rapidly failed, and there was a tendency to anuria, apparently depending upon the last two conditions. Lung complications were infrequent.

Death as a rule occurred within forty-eight hours of the appearance of the hemorrhages, 30 of the cases dying within twenty-four hours. In 2 cases, however, life was prolonged until the ninth and eleventh day after the appearance of this symptom. In all cases death was due to cardiac failure, sudden or gradual. Post-mortem examinations were made in the majority of cases, and in all (with one exception) internal hemorrhages were present. They were most noticeable in the

thoracic cavity, the serous surfaces being the usual seats. The hemorrhages were frequent in the visceral layers of the pericardium and pleuræ. In the former the posterior and basal cardiac surfaces, and in the latter the anterior and posterior surfaces of the lower lobes of the lungs, were the usual situations. Extravasations of blood were invariably found in the loose tissues around the aorta, œsophagus, and trachea. Endocardial hemorrhage was present in one case. The cavities of the heart were frequently dilated, but the myocardium appeared normal. In the alimentary canal hemorrhages were found into the lower part of the œsophageal mucous membrane, and into that of the stomach, in the latter situation being sometimes so closely set and numerous as to entirely alter the aspect of mucosa. In the intestines they were less frequent, being found in the duodenum in 3 cases, and in the Peyer's patches of the ileum in 2. In only 2 cases did they occur in the peritoneum. The kidneys were rarely affected, but subcapsular extravasations occurred in 2 cases, and in 1 there were small hemorrhages into the calices. The spleen and liver invariably appeared normal. Hemorrhages into the muscles were of frequent occurrence, and, when these had been superficial, were the cause of ecchymoses noted during life.

The cases were treated on ordinary principles, and in addition in 12 (including the recovery) the antitoxin treatment was carried out. Six, however, of these cases were admitted either moribund, or so far affected by the toxic products of the disease as to preclude all hope of recovery.

Remarks.—Hemorrhagic diphtheria presents analogies to hemorrhagic varieties of the other specific fevers tending to rapidly fatal issue, profound changes in the blood being set up by the circulation of toxic products. In diphtheria, however, the disease being primarily local and general manifestations secondary, it is not surprising that the course is more prolonged. Degenerative changes in the blood-vessels have been described by Oertel as occurring, and may determine the seat of hemorrhage, traumata, too slight to cause extravasations under ordinary circumstances, being in some cases the exciting cause.—*British Medical Journal*, March 30, 1895, p. 694.

16.—ANTITOXIC TREATMENT OF INFECTIVE DISEASES.

By BERTRAM HUNT, M.B. Oxon., Assistant in the Diphtheria Department at the British Institute of Preventive Medicine.

There are two methods known of protecting against infective disease : (1) active immunity (more or less permanent) by the Pasteur method of introducing mitigated virus, with consequent

slight illness, recovery, and protection against a virulent virus ; (2) passive immunity (temporary only) by the Behring method of introducing mitigated bacteria or their products, with slight illness, recovery, and protection against a virulent culture or toxin, and the transference of this immunity to another animal by the injection of blood or serum taken from the first. In the first method the animal forms its own antitoxin ; in the second it is previously formed in another animal and transferred as a therapeutic agent. A free admittance of oxygen to the culture promotes, therefore, the growth of the bacilli, and leads to an early formation of the toxin, suggesting that the specific poison is some constituent of the bacterial protoplasm. Bacterial specific poisons were at first supposed to be ptomaines, and, although bacteria do many of them produce alkaloidal and other poisons, they are of no importance to the subject under consideration, nor, indeed, to any problem of immunity in that they are not specific. Experiments showed that toxin was elaborated, not in the media, but in the protoplasm of the bacteria—a proteid poison being formed in a solution containing no albumen, and that the production of bacterial poison was due to synthetic and not fermentative action. He would define, then, the diphtheria toxin as a specific proteid poison. But it must be clearly understood that it was not necessarily the proteid which was the poison, but what might perhaps be described as its disposition, its active and specific quality. Such active proteids had been called living proteids, and if this were adopted, then the toxic quality must be defined as the life in the proteid. This toxin, this vital chemical quality of bacterial protoplasm, was concerned in the metabolism of the bacteria, but it also constituted the offensive and defensive weapon of the microbe in its struggle for existence. He would say that in all living cells the protoplasm had this vital function. It was necessary, he thought, to regard the animal organism as a collection of pure cultures of cells of various types living together in harmony, and in a state of complete chemical compatibility ; as the forms of life fittest to survive in that particular environment the animal body ; as resenting the intrusion of foreign substances, whether alive or dead, and with offensive and defensive weapons to maintain their existence, these weapons being chemical ones. In animals which had a natural immunity to any infective disease it was obvious that the specific myeo-proteid elaborated by the bacteria causing that disease must be either inoffensive or easily destroyed by the cells, and that it would occasion no struggle, no additional chemical activity in the animal cells—i.e., no constitutional or local disturbance. It ought not to be expected that such a body should be modified in any way, but merely excreted or quietly

and quickly destroyed. In susceptible animals, on the other hand, there was a struggle, for a foreign proteid was introduced that was offensive and harmful to the animal organism, which organism, if it gained the upper hand, was able to yield us a substance of the highest therapeutic value.

Antitoxin was very different in its action to that of any modification of toxin as yet known to us. For it was therapeutic, whereas toxin, mitigated by any of the ordinary methods, if injected simultaneously with virulent toxin, was found to accelerate the fatal termination. Antitoxin was, moreover, perfectly harmless, and the immunity which it conferred was immediate and temporary. Buchner had settled once for all time that direct antitoxic antidotal action of the antitoxin to the toxin neither took place *in vitro* nor in an animal organism, as had been maintained at first by Behring. The two substances—antitoxin and toxin—existed side by side, and no neutralisation occurred. Antitoxin, moreover, acted merely as a stimulus to the chemical processes of the cells, and if these cells be enfeebled in any way and their vitality lowered, the stimulus failed to rouse them, and the antitoxin was of no avail. Just as in animals immune to diphtheria a curative substance was found in the blood, so presumably a similar curative substance must be obtainable in the case of all diseases caused by the invasion of the animal organism by any kind of cell foreign to it. A law, therefore, might be laid down that, whenever disease is set up by the invasion of any other form of life into the animal organism, immunity to such disease would confer curative properties on the blood of the immune animal. This curative quality of the serum in immunity to diseases had been designated as antitoxic only in tetanus and diphtheria, and not in the others, because the bacteria concerned in their production did not produce any definite specific poison for the serum to have been erroneously supposed to be able to neutralise.

He defined antitoxin and the specific curative agents found in the blood of animals immune to infective diseases as being the specific proteids of the bacteria to which immunity had been attained, modified and digested by the cells, and that whatever their chemical nature was they must be considered as derivatives from such myco-proteids, still possessing some degree of their specific nature, but with a wholly beneficent character. To regard specific curative agents as being of this nature was to find an explanation of many otherwise most puzzling facts. If the conclusions arrived at were correct it should follow that if a series of animals was taken of all degrees of susceptibility, from one possessing a natural immunity up to an animal of the most extreme susceptibility, the further removed the animal

was from the condition of natural immunity the more antitoxic the serum should prove ; for in the very susceptible animal no destruction but only the requisite beneficent mitigation of the poison would take place.

If antitoxin was merely toxin altered and excreted by the cells, how is its action as an excito-cellular stimulus to be explained? Buchner had shown that the injection of any proteid matter, foreign to an animal organism, increased the antibiotic power of the blood, and Rumpf obtained distinct therapeutic results in typhoid fever by the injection of the dead bacilli of blue pus. Klein also found many dead bacteria protective against cholera. He suggested as an explanation that the specific myco-proteids had a quality or disposition hostile or injurious to animal cells. This quality might consist of some particular molecular arrangement or vibration. If the cells succeeded in conquering, in digesting, this proteid poison, they would effect this by causing an alteration of such molecular arrangement. This altered arrangement being the result of a cellular effort of a particular kind, and possibly bearing the mark of that effort stamped upon it, it might be conceived that whenever this altered substance was brought into contact with cells similar to those which had bestowed the fresh molecular arrangement upon it, a cellular effort identical with that originally excited would be instantly induced.—*The Lancet*, March 9, 1895, p. 604.

17.—THE NATURAL HISTORY OF RHEUMATIC FEVER.

By ARTHUR NEWSHOLME, M.D., Lond., Medical
Officer of Health of Brighton.

[In the fourth and last Milroy Lecture delivered at the Royal College of Physicians, of London, in March, 1895. Dr. Newsholme brought forward the following arguments as to the Infective Character of Rheumatic Fever:]

Rheumatic fever shares its greater prevalence in winter and spring with several other specific febrile diseases, and that its marked association with deficient rainfall is shared by enteric fever, scarlet fever, erysipelas, &c. In the case of rheumatic fever there is reason to believe that deficient rainfall is provocative of an increased prevalence of the disease, only after the effects of this deficiency have been produced on the subsoil.

We may next consider how far the *clinical features* of rheumatic fever and its analogy with recognised specific febrile diseases confirm the view that it partakes of the same nature.

The mode of onset, with shivering, general aching, &c., is strongly suggestive of the invasion of the system by micro-organisms. It resembles most closely, perhaps, the onset of influenza. Sore-throat is an initial symptom in a large proportion of cases. The throat symptoms, as in scarlet fever, may be extremely slight, but they probably form an essential part of the disease.

The progress of the illness is very like that of a specific febrile disease. The continuous fever, the frequent simultaneity of articular and visceral lesions, the occurrence of epistaxis, and the protracted curve of the temperature all indicate an infective disease ; while the general aspect of the patient gives the same impression. The tendency to hyperpyrexia, as in scarlet fever, enteric fever, and puerperal septicæmia, forms another point of analogy. The occurrence of endocarditis is suggestive of microbic action. With the possible exception of chorea, all the diseases in which endocarditis is known to occur are infective in character. It is true that the fever has no such definite duration as in scarlet fever, enteric fever, pneumonia, &c. ; but this is largely due to secondary serous inflammations. In the atypical character of its temperature curve rheumatic fever resembles erysipelas rather than typhus or enteric or scarlet fever.

The tendency to relapse is another feature characteristic of the disease. This by no means negatives the hypothesis of infectivity. Relapses are common in erysipelas. Relapsing pneumonia is described by Dr. Sturges ; relapses of influenza and of enteric fever are common ; recrudescences of diphtheria not infrequently occur within a few days of the first attack, or when the patient is about to be discharged from hospital. A similar phenomenon has occurred in my experience in a small percentage of scarlet fever cases.

The liability to second and later attacks.—There is a regular scale of immunity among the diseases admittedly infective. Perhaps a second attack of small-pox is less common than of any other infectious disease, but it does occur. Third attacks of scarlet fever are known. Diphtheria appears to confer very slight immunity against subsequent attacks. Erysipelas predisposes to subsequent attacks, and we have in this respect an additional point of analogy between erysipelas and rheumatic fever.

The influence of the personal equation varies greatly in different instances. An unvaccinated person definitely exposed to the infection of small-pox seldom escapes. It is difficult to believe that any persons receiving the anthrax bacillus into a scratch would escape. The proclivity of certain families to diphtheria and to enteric fever is notorious, though their members are living under the most diverse conditions. Hay fever might be

taken as the type of a local infective disease in which a special personal proclivity is required for the production of the disease. Rheumatic fever, like erysipelas, comes much nearer to hay fever than to small-pox. It is almost certain that the number of persons receiving the streptococcus of erysipelas into abraded points is much greater than the number developing erysipelas thereafter, and it is almost certain that more persons receive the rheumatic infection than there are rheumatic fever attacks.

The method of infection in enteric fever and cholera is almost always *viâ* the alimentary canal; in scarlet fever and diphtheria the infection may enter by the alimentary canal or be implanted by inhalation directly on the throat. In erysipelas it is doubtful whether the infection is always received at the point of traumatism or whether, as in the case of acute periostitis, the micrococci have reached the specifically inflamed part *viâ* the blood circulation. In the majority of cases an abraded surface is the point of inoculation in erysipelas, and idiopathic erysipelas may be regarded as non-existent. In rheumatic fever it is probable that the specific infection enters the system at the tonsils or some other part of the naso-pharynx.

The degree of infectiousness.—Here again there is a scale of decreasing infectiousness from such diseases as small-pox and measles at one end of the scale, to enteric fever and cholera, which are only infectious by their intestinal discharges, and to erysipelas, which is only infectious to predisposed persons and probably only when an abraded surface exists. Rheumatic fever comes last in the series, the exact degree of its infectiousness being unknown. Assuming that rheumatic fever is due to the multiplication in the system of a specific micro-organism there can be no doubt that the chief seat of its multiplication is in the affected joints. Now infection is greater or less in proportion to the exposure of the affected parts. The exanthemata are typically infectious; enteric fever less so, though its specific discharges gain exit from the body. The rheumatic fever infection is deeply buried in the joints; we have little or no positive evidence that its micro-organisms ever escape by any of the emunctory organs. It may be that they pay for their hardihood in invading the system by securing a sepulture in its cells.

The fact that the joints are the seat of the trouble in rheumatic fever itself favours the infective theory. The “vessels of the synovia of the joints appear to have some special proclivity to form a nidus for the wandering germs of disease,” as of gonorrhœa, pyæmia, and we may add rheumatic fever. Dr. Payne surmises that probably mechanical causes produce this determination of bacteria, as in gout they produce the determination of urate of soda.

Next as to the therapeutics of the disease. The specific power of salicin and salicylic acid to speedily terminate this disease forms one of the most remarkable conquests of modern medicine. It is comparable with the specific power of quinine in malaria and of salts of mercury and iodides in syphilis. Although the specific organism of syphilis has not been satisfactorily isolated, its existence is generally admitted; and the pathogenic importance of Laveran's protozoal organism appears to be fairly well established. We may, therefore, fairly argue on the grounds of analogy that rheumatic fever belongs to the group of specific febrile diseases.

It is not necessary to enter in great detail into the dubious evidence which bacteriology has hitherto supplied. It may, however, be stated in short that the evidence in favour of any one organism being the *materies morbi* of rheumatic fever is incomplete and unsatisfactory. Experimental evidence is wanting. There has been, so far as I know, no case of inoculation of rheumatic fever in the human subject by the blood of a rheumatic patient, so that the link in the evidence which has been supplied for malaria is still wanting for rheumatic fever.

The epidemics of rheumatic fever in the eighteenth century are too distant and too vaguely described to be regarded as authoritative. The more recent epidemics described in previous lectures furnish more exact evidence, and I venture to say that in view of the mass of evidence now collected it will be difficult to deny the infective character of rheumatic fever. Infection may be conveyed (*a*) directly from person to person, or (*b*) indirectly from infective discharges, which gain access to soil, water, or milk, or other foods, or become desiccated in inhabited rooms. If in the years in which rheumatic fever is excessively prevalent it is communicated from person to person it is remarkable that so few instances in which this has been apparently noticed are on record, though this does not necessarily negative the occurrence of infection. We have a possibly analogous case in phthisis, the infective character of which, although until recently it was not suspected by the majority of physicians, is now well recognised.

On the whole, we incline to the view that rheumatic fever is caused by a saprophytic organism having a tendency to assume a parasitic life; that in most years only a small proportion of these organisms survive to the stage of parasitism, owing to the activity of their natural enemies in the struggle for existence; but that in dry years associated with low ground water and an optimum soil temperature the growth of these organisms is favoured more than that of countervailing organisms, and an abnormally large number of them are released into the atmosphere in a desiccated condition and become parasitic in

persons whose vital processes do not enable them to resist the invasion. In the present state of our knowledge the gradual extension of the disease appears to be best explicable on the supposition that local geological and meteorological conditions cause the difference in time at which the reaction between special subsoil conditions and the vital activity of the rheumatic fever virus occurs.

Our investigation into the origin of individual cases of rheumatic fever would be greatly facilitated by a knowledge of its exact period of incubation. Whether, like scarlet fever, it is only a few hours or may extend to months like hydrophobia or malaria is unknown. It is not unlikely that in this disease there may be a "latent parasitism," the organism already housed in the system waiting for its development until the personal factors to be next considered come into play.

The chronic character of some forms of rheumatism may be used as an argument against its infective character. It is not certain that chronic and acute rheumatism are the same disease; but if they are we have the analogous cases of chronic and recurrent forms of diphtheria and of the long-continued life in the individual of the malarial poison.

There can be little doubt that the influence of *heredity* in relation to rheumatic fever has been much exaggerated owing to its common confusion with gout. There appears to be but a slender foundation for the notion that there exists what is called by Charcot an "articular disposition," a sort of parent stem from which issue two primary branches, gout and rheumatism, or what is called an "arthritic diathesis," from which, according to J. Hutchinson, develop gout under the influence of dietic causes and rheumatism from exposure. Yet it appears impossible to treat of rheumatism without the use of the words "diathesis" or "disposition," notwithstanding Dr. Pye-Smith's eloquent *caveat* against their use. He asks, How are we to define a rheumatic disposition? "If the disposition is not carried out it remains an unproved assertion." It matters little, however, whether we regard the members of a rheumatic family as inheriting a special disposition to the disease, or the members of a non-rheumatic family as inheriting a special immunity from it—either hypothesis would be tenable—the result is the same. If under certain conditions a person of one family will develop rheumatic fever, while under identical conditions a person of another family will not develop rheumatic fever—and this must, I think, be admitted—we must acknowledge a special personal factor which in certain cases favours, or at least fails to prevent, an attack of rheumatic fever.

Injury has an important influence in causing rheumatic fever. It may occur in the form of actual mechanical injury or be

produced by former disease, as erysipelas, or be the result of fatigue or exposure to inclement weather.

The fact that rheumatic fever occurs in a predominantly large number of cases in dry, hot seasons, does not exclude the operation of the conventional "chill." The influence of cold is a question, not only of actual temperature, but of variations of temperature, which in this country are greater in summer than in winter.

In connection with chill we may mention the *lactic acid theory* of origin of rheumatic fever. It is still doubtful if lactic acid is excreted by the skin, and there is no positive evidence that there is an excess of lactic acid in the blood of rheumatic fever patients. It is not necessary to deny that lactic acid is developed excessively in rheumatic fever. We simply maintain that if this is so the agent concerned in its production is a micro-organism which is the essential cause of this disease.

Corporeal over-fatigue undoubtedly opens the gate to rheumatic fever. This is in accordance with what we know of other diseases. It is probable that protracted labour predisposes to puerperal fever, and the influence of forced marches on the origin of enteric fever and dysentery is well known. Fatigue probably favours rheumatic fever by causing temporary accumulation of effete matter and by causing nutritive modifications owing to the mechanical attrition. It is fairly certain that fatigue affects the localisation of rheumatic fever, and that this is the rational explanation for the exceptional frequency with which the knees and ankles are attacked.

There are certain facts which appear to point more definitely to the influence of traumatism in causing rheumatic fever. Many surgeons have had experience of an attack of rheumatic fever following attempts to reduce an old dislocation or to release old adhesions about a joint.

As to race there is no evidence, so far as we know.

The same remarks apply almost equally to occupation. The only statistics which would settle this question would be those dealing with the total rheumatic fever patients in a given community, classified according to age and sex, in proportion to the total population of the same community. Such statistics would obviously be unobtainable except where, as in Norway, rheumatic fever is universally notified.

Diet possibly has some influence, though exact facts are wanting. With one clinical fact every practical physician is acquainted—viz., the frequency of relapses when animal food is given too early after an attack of rheumatic fever. There is, however, no evidence on a large scale that omnivorous or chiefly carnivorous races are more prone to rheumatic fever than vegetarians.

The conditions of soil producing rheumatic fever and malaria appear to be almost exactly opposed to each other. It would appear that a moist soil which has been previously saturated with water, associated with a soil temperature of about 65° F., is most favourable to the development of malaria. As a rule, it occurs in marshy ground which has become superficially dried, and is intensified by any obstruction to the outflow of the ground water. In rheumatic fever the greatest amount of rheumatic fever usually corresponds with the year of, or immediately following the year of, smallest rainfall, in which the ground water is exceptionally low, and that the least rheumatic fever corresponds with the years in which there is the shallowest layer of dry earth between the ground water and the external atmosphere. The seasonal distribution of the two diseases is dissimilar. In temperate climates malaria has a maximum prevalence in spring and in autumn, and a minimum in winter, when rheumatic fever is most prevalent. In the most intensely malarious spots of the tropics the maximum prevalence of malaria is markedly associated with the rainy season; if the rainfall is not excessive the malaria usually reaches its maximum when the rain ceases. Alternations of drought and moisture with a moderately high temperature seem most favourable to malaria; whereas rheumatic fever is most abundant when the deficiency of rainfall has been exceptionally protracted, and has produced a marked and exceptional drying of the subsoil.

We are now in a position to take a general survey of rheumatic fever and the diseases with which it is most closely allied. We have shown by evidence derived from death returns and hospital returns in various countries, and from the notification returns in Scandinavia, that at intervals of a few years rheumatic fever prevails epidemically, though in the intervals it is never entirely absent from any community from which we have been able to obtain returns. Some of these epidemics have been so widespread as to deserve the name of pandemics, among which we may specially mention those occurring in 1868, in 1874-75, and in 1884.

The epidemic prevalence of rheumatic fever has always occurred, so far as this country is concerned, in years of exceptional scarcity of rainfall. Judging by the evidence in this country, the deficient rainfall appears to produce this effect by causing an exceptionally dry and warm subsoil, which is usually associated with low-ground water. In the instances where records were available it has been found that when deficient rainfall was, owing to its seasonal distribution, not accompanied or followed by exceptional lowness of ground water there was no epidemic prevalence of rheumatic fever. It is probable that mere lowness of ground water is not the only

factor concerned in favouring rheumatic fever, but this along with some other hitherto unknown factor of temperature of soil or rate of flow of ground water. Whether this is correct or not, it is certain that dryness of soil is favourable to the occurrence of rheumatic fever to an epidemic extent.

We have some difficulty in placing rheumatic fever in its exactly appropriate place among the specific febrile diseases, though of its claim to a place among them there can be no doubt. Is it an infectious disease like whooping-cough or measles? If so, it has hitherto succeeded admirably in concealing its true character. Direct infection, if it occurs, is exceptional. Is it a purely miasmatic disease like ague? We have already given reasons for regarding the poison of ague as absolutely distinct from that of rheumatic fever. They may both, however, be miasmatic diseases in the sense that the virus is formed in the soil, and is not transmissible directly from patient to patient. Or it may be miasmatic-contagious like enteric fever or cholera, one phase of its existence being passed saprophytically in the soil and the next in the human organism. Whichever of these latter hypotheses is correct, we have no doubt that it is essentially a soil disease. It is impossible in the present state of our knowledge to be certain whether rheumatic fever is due to an organism which is usually solely saprophytic, and only becomes parasitic when its habits of life are altered by the stimulating effects of dryness and warmth of soil, or, to put it in another way, only migrates into parasitic life when extra-corporeal food is deficient; and whether this organism, after its rapid multiplication in the system, is eliminated therefrom and subsequently infects the soil, or whether each case of the disease involves a fresh infection from contaminated soil, we cannot at present state. There are many points of analogy with tetanus and erysipelas, more particularly the latter. The virus of tetanus inhabits the soil, and can only become parasitic when directly inoculated. It is highly probable that the same is true for erysipelas; it may also be true for rheumatic fever.

A disease like rheumatic fever, which certainly occurs chiefly in dry soils, appears to afford but little scope for preventive measures. It would appear at first sight to strike at the root of the hygienic axiom that a dry soil is the most healthy. It is probable that a distinction must be carefully drawn between dryness of soil due to its drainage, to the removal of locks, mill-ponds, &c., from the neighbouring streams, and dryness of soil due to a series of hot and dry seasons. The latter would be associated with a higher temperature of the soil than the former, and would undoubtedly have a different effect on the biological quality of the soil.—*The Lancet*, March 16, 1895, p. 661.

DISEASES OF THE NERVOUS SYSTEM.

18.—ATAXIA AS A SYMPTOM OF DISEASE IN
THE CEREBRO-SPINAL SYSTEM.

By D. B. McCARTIE, M.D.

Ataxia is a symptom of disease or derangement of the nervous system almost as prominent as abolition of function or paralysis. It is a notable feature in many diseases. It should not be always associated with ataxia occurring in the lower extremities and known as "locomotor ataxia," since the rare and hereditary form of ataxia shows that it has much wider applications and must invade a much greater surface of diseased area than is usually ascribed to it when associated with the disease "tabes dorsalis," for besides the inco-ordination of movement of the lower extremities there is present inco-ordination of the eye muscles, or nystagmus, and inco-ordination of the tongue and laryngeal muscles, which causes impairment of speech. We find ataxia also combined with paralysis in an almost distinct class of cases, the difference being that the paralysis and ataxia occur *pari passu* and are known as "ataxic paraplegia."

Ataxia is found most commonly in the disease called locomotor ataxia, but it is a well-marked feature also in ataxic paraplegia and in Friedreich's disease, or the hereditary form. Again, we find it well marked in disseminated sclerosis, where the ataxia occurs on voluntary movements of the muscles of the extremities and the muscles of the eyes, larynx, and tongue. It occurs in general paralysis of the insane, interfering with the gait and proper action of the tongue. It occurs occasionally in neuritis, and has followed injuries to the cord and brain. It is especially prominent in disease of the cerebellum, and occasionally in tumours situated in the cerebro-spinal system. It has been seen as a sequel to diphtheria and alcoholism, also arsenical poisoning. It sometimes occurs in hysterical patients, and lastly is found as a functional derangement of the nervous system.

Many theories were brought forward to explain the curious muscular irregularity called ataxia; some deal with the physiology of the cord and explain the inco-ordination occurring because of disease in the posterior columns of the cord, whereby the sensory impressions from the muscles to the brain are cut off. This presupposes a co-ordinating centre set aside in the cerebellum and acting on the motor impulses by a co-ordinating action. But, no matter how it occurs, it is

evident that inco-ordination means lack of force and not perversion of normal force. No ingenious theory can throw light on a force supposed to exist in the cerebellum which regulates impulses coming from the brain. It looks more feasible to consider that the impulses are misspent or perverted, and that the muscles act irregularly in response to irregular nerve currents, since their paths of conduction are interfered with.

The co-ordinating action of movement is a far more intellectual act than the volitional impulse itself; therefore it would be contrary to all our knowledge of the brain as a higher centre to place the intricate and highly intellectual act of co-ordinating movement in a lower centre, as the cerebellum.

Such an intellectual act as violin-playing would not be very high in the scale of intelligence if it depended on the correcting action of the cerebellum—that is, according to our knowledge of the seat of intellect in the brain. Our acts are highly intelligent, since they portray the thought which arises in the brain, and consequently are co-ordinated from the first and require no additional feature save proper conduction.

When anæsthesia of the lower limbs is present there is an inability to stand steadily, especially if the eyes are shut. This has been thought to be the cause of inco-ordination, but anæsthesia occurs independently without causing ataxia. Leyden maintains that since guiding sensations contribute to due execution of movement, the ataxia is merely a consequence of interruption in transmission of such sensations along the cord; but Fagge quotes a case in which there was perfect anæsthesia and even loss of “muscular sense,” but no inco-ordination. Another case is instanced of multiple tumours on the posterior nerve roots in which ataxia existed, as proving that interruption of the sensory nerve currents from the muscles going to the cerebellum is the cause of ataxia; but in this case it would be very improbable that all sensory currents were cut off. It also happens that ataxia does not generally take place in partial peripheral nerve paralyses nor usually in neuritis. None the less the most maintained theory seems to be the lack of conveyance to the cerebellum or brain of the so-called “muscular sense,” whatever that may be, through disease of the sensory tract in the posterior columns of the cord, or disease in the sensory nerves themselves which, through the posterior columns of the cord, are supposed to bear impressions upward to a co-ordinating centre in the cerebellum.

Volitional motor impulses pass down through the motor tracts, and, being the primary elements in muscular action, do not seem to necessitate sensory phenomena from the muscle to indicate their action, so that if any irregular action takes place

it may be due to the obstruction of these volitional impulses in the diseased tracts of the cord or in peripheral nerves themselves, or possibly in other parts of the nervous system. It is far more probable, therefore, that the obstruction in the cord or nerves interferes with the primary volitional brain impulse coming downward and not the loss of sensory currents from below, which require the complicated mechanism of transmission up to the brain and down again, for how these impressions come down is again a problem, since they do not arrive at the muscle through the motor tracts, for disease of these tracts does not necessarily imply inco-ordination.

The sensory theory implies that all our actions are automatic and consequently involuntary, since they depend on the sensations in the muscular tissues. But if the volitional impulse comes primarily from the brain it would upset the idea of its depending and acting on the muscular sense. The muscle sense calls for certain action, and without it the motor impulses are inco-ordinated; in this case the same argument applies to the muscles of the eye, the tongue, and the larynx, where the connection of the posterior columns of the cord and the cerebellum are not evident. Thus, in insular sclerosis and general paralysis of the insane the ataxia is quite marked, without disease of the posterior columns of the cord, the sensory nerves of the muscular tissue, or the cerebellum.

The order of lesion appears to be:—(1) Paralysis, due to complete destruction or obstruction of nerve fibres or centres; (2) spasm, due to partial scleroses (spastic paraplegia); (3) ataxia, due to obstruction in some nerve bundles and consequent perversion of the nerve currents as regards time and place.

It is most probable that a muscular action co-ordinates itself primarily from its first origin in the brain or cord, and requires no muscular sense to direct its action except the perfect transmission of its force, irregular transmission giving irregular results; tremor being a fine form of obstruction to transmission, ataxia a rougher form, while spasm may be complete loss of the nerve current to the flexor or extensor sets of muscles.

From these views it may be concluded that the disease called locomotor ataxia has a wider field of lesion than the posterior columns of the cord or the sensory nerves in connection with the muscles, and that we must look higher up in the brain for the cause of the inco-ordination, since it occurs in several diseases where the cord and the nerves are intact. Again, the change often affects the eye muscles, and those of the larynx and tongue, which can not be explained on the analogy of these parts to the sensory nerves of the cord.

There is no connection between the loss of sensation in the skin and ataxia except that anæsthesia increases existing inco-ordination, nor is it evident that ataxia depends on loss of "muscular sense," since in the case reported by Fagge loss of "muscular sense" occurred, but no ataxia. It is an ingenious method of explaining a difficulty, for physiology points out that the posterior columns of the cord are ascending columns, and consequently transmit impulses upward, and they are found generally diseased in connection with ataxia. It is necessary, then, to form a theory to conform with their functions; hence it is assumed that muscular sensations pass up through the posterior columns and help to co-ordinate in the cerebellum the motor impulses which come down from the brain. This would limit all our actions; every act would then be reflex or automatic and would depend on the "muscular sense." The same applies to the utterance of thought in speech; the expression of thought would depend on the muscular sense or automatic action of the laryngeal muscles, the eyes would follow a similar action, and, indeed, the entire muscular system. Voluntary action were impossible, for the co-ordinating act is the most intellectual feature of any act, but if it depended on the "muscular sense" it would be merely a reflex condition.

The physiology of the cord is not so well understood as to suppose that all impulses are conveyed up the posterior columns. It is a contradiction to say that the cerebellum presides over co-ordination when the conduction of these posterior fibres is upward. There may be downward fibres as well which deal with the proper equalisation of nerve force, though our conception of such a co-ordinating force is vague, and, indeed, it is extremely improbable that such a registering and qualifying condition exists outside ordinary muscular action. The fact ataxia is plain; we infer a co-ordinating force. It would be more rational to consider that all movements are co-ordinating naturally, except those obstructed in transit. This condition is rather evident in disseminated sclerosis, where the posterior columns and sensory nerves are intact, but where much inco-ordinated action occurs and where evident patches of obstruction exist. It is also manifest where tumours grow in special nerve tracts, in general paralysis of the insane, and spastic paraplegia.

The loss of the knee jerk is brought forward to explain the early interference which disease in the sensory nerves exhibits, but the loss of reflex at the knee may be explained as due to loss of a downward motor current, since it often occurs when sensation is perfect.

In cases of locomotor ataxia the muscular tissue does not show loss of sensibility. If ataxia were due to the loss of this

“muscular sense” most sufferers would lose the sense of muscular position; but this rarely happens. And again, where the muscular sense is lost co-ordination is preserved. In cerebellar disease there is no loss of the sense of position, yet the patient can not co-ordinate. It is not plain, therefore, what the sense of position has to do with ataxic movements. The eye ought to be a good example of how the sense of position affects co-ordination, but in nystagmus the sight is perfect.

All voluntary movements are primary acts, but if they depended on a sensory impression they would necessarily become secondary, which would mean abolition of the will power. The finest co-ordinated movements show a cerebral influence, such as violin-playing; they are acquired with difficulty, and other mental qualities, as memory, taste, audition, and sight, are brought to bear upon the action, showing that it is a primary mental influence which co-ordinates the action, and not an automatic mechanism. Inco-ordination is possible where the posterior columns of the cord are intact, the peripheral nerves are free from disease, and the cerebellum healthy; this occurs in disseminated sclerosis, hysteria, and functional ataxia. Then we must look for the lesion higher up in the motor tracts, where obstructive lesions of this kind are found in general paralysis of the insane and in disseminated sclerosis.—*New York Medical Journal*, March 9, 1895, p. 302.

19.—ARTHROPATHIES OF LOCOMOTOR ATAXY.

By PARKER SYMS, M.D.

The study of structural diseases of joints depending upon central and peripheral nerve lesions is of comparatively recent date. Among this class those diseases which involve the posterior portion of the spinal cord, affecting sensation and circulatory conditions, are the ones which are particularly responsible for the joint diseases. Principal among them are locomotor ataxia and the condition known as syringomyelia.

That these and similar diseases do cause very grave and remarkable arthropathies is well-known, and yet the exact relation of the spinal lesion to the joint trouble does not seem to be clear, and many opposed opinions and theories have been advanced.

It has been maintained :—(1) That it is purely a mechanical condition caused by the abnormal gait of the patient, due to locomotor ataxia. (2) That it is due to a direct trophic disturbance of central origin—a certain point being involved for

a corresponding joint, or that there is one centre responsible for the nutrition of joints. (Buzzard suggests that this hypothetical point is in the medulla.) (3) That it is not a peculiar disease, but is (*a*) arthritis deformans coincident with the tabes, or (*b*) a purely syphilitic joint in the same connection. (4) That the serous effusion is due to trophic disturbance, and that the changes in the bone are due entirely to the pressure of the effusion and the consequent anæmia of the periosteum. (Macnamara.) (5) That it is due entirely to a traumatism and that the primary changes are inflammatory, but, owing to analgesia, the joint is not kept at rest and progress is different, merely on that account, from ordinary traumatic arthritis. (6) That it is due to a direct trophic disturbance, like ulcer perforans, not of central origin, but due to atrophy of the peripheral nerves (Weizsäcker). I understand this to mean that only the nerves of the diseased joint were atrophied, and therefore, this joint became involved. (7) That it is due to traumatism or some change in the condition of the joint to be affected. The progress attained depends on the fact that the nerves of all large joints are degenerated, and some degeneration occurs in the structures of apparently healthy joints in tabetics, as pointed out by Jurgens and Westphal.

I am inclined to the last theory. The fact that the nerves and structures of seemingly healthy joints are in a state of partial degeneration has been demonstrated, and it only remains to assign a reason why a certain joint should continue in the process. I think it is reasonable to look for this in some local condition, such as traumatism. If it were simply a continuation of the degenerative process, other joints would be involved in time. But a patient may have a single joint affected for years.

The idea that it is dependent on the peculiar gait is not tenable, for the disease occurs before inco-ordination is present, and patients have developed it while lying in bed ; also because it occurs in the upper extremity.

Neurologists have not found for us the central point alleged by Buzzard and Charcot, and changes in the peripheral nerves seem to explain the disease more satisfactorily. Charcot's disease differs in its pathology and symptoms from arthritis deformans and syphilitic joints sufficiently to give it an identity as a peculiar condition. The idea that it is caused by the serous effusion, as suggested by Macnamara, it seems to me does not need contradiction. I do not consider it of a purely traumatic nature. The changes are none of them of an inflammatory nature, and certainly must be regarded as due to nerve changes.

The pathological changes in these joints are remarkable, involving both the bone and the soft parts, producing the most extreme deformities. The synovial membrane is usually anæmic, though sometimes congested. The capsule becomes very much

thickened by connective-tissue increase. The circumarticular structures are often the seat of extensive connective-tissue hyperplasia, and this mass forms a large part of the deformity. The entire capsule may be destroyed and be replaced by a mass of new connective-tissue. There is always a hydrarthrosis early, and a peculiar effusion into the deep fascia and the soft parts, sometimes extending throughout the limb. The capsule and ligaments are stretched and distended by the swelling and hydrops. This gives an abnormal mobility to the joint. Ossification occurs in any of the tissues at and about the joint. Bone formations may be found in the tendons, muscles, fasciæ, and capsules, or they may be formed as free bodies in the joint cavity. There are two classes of cases, owing to two sets of processes which occur in the bone tissue—viz. the hypertrophic and the atrophic. We may find a joint diseased in both manners—that is to say, one bone of the joint may be hypertrophied and the other atrophied. In the atrophic form the ends of the bone and the epiphyses are more or less absorbed, and the bone may terminate in a rounded end like a drumstick.

The hypertrophic form produces great increase in the size of the bone by large bony deposits and outgrowths on the epiphysis. These bony deposits are not confined to the epiphyses, but also involve the shaft, and are often found on the capsular or soft parts. Spontaneous fractures are very common. They may involve the shafts or the processes. These fractures may unite, often forming good union, but the callus is usually overabundant.

In the hypertrophic forms the joint functions are usually better than in the atrophic. In the latter the opposing surfaces are diminished, and the lack of support allows great freedom of abnormal motions.

The symptoms are well marked, and the disease is easily recognised. As these joint affections come early in the course of locomotor ataxia, we may not have many symptoms of that disease present to aid our diagnosis; but we are sure to find some.

The joint disease is characterised by its sudden onset and comparative absence of pain. Sometimes the first indication of the disease is a spontaneous fracture of a bone shaft, but usually there is a sudden and rapid swelling of the limb produced by an œdema of the deeper parts. This general swelling subsides, but the joint is found to be deformed, and remains enlarged. The peculiar deformity of the joint, its rapid development, the absence of pain, attended by some of the characteristic symptoms of locomotor ataxia, complete the means of diagnosis. It may be mistaken for arthritis deformans, but this latter disease comes on slowly, is attended by severe pain, and you will be aided in differentiating by the absence of symptoms of tabes. Besides,

in arthritis deformans the motion of the joint is restricted, while in arthropathia tabidorum the joint is usually abnormally moveable.

Beyond the use of splints in those cases where mobility is great, very little can be done in the way of treatment.—*New York Medical Journal*, January 19, 1895, p. 65.

20.—THE SENSORY THROAT NEUROSES OF THE CLIMACTERIC PERIOD.

By FELIX SEMON, M.D., F.R.C.P., Physician for Diseases of the Throat to St. Thomas's Hospital.

[The following excerpt is from an important contribution to the *British Medical Journal*, of January 5, 1895 :]

The patients in question, who I consider form a distinct and separate class, are women in the critical period of life, commonly spoken of as the climacterium, the menopause or the "change of life," that is, women between the ages of 40 and 50 on an average.

As to the kind of sensations experienced by these patients, they are described very variously. Most frequently one hears of unpleasant sensations which often enough cannot be exactly described, and which are in some cases general, in others shifting from one part to the other. In other cases the patients name general or partial "irritation," "burning" sensations, general or partial "soreness," "dryness," "tickling," desire to constantly "scrape" or "hawk and hem," sensations of "choking" or of "strangulation," a feeling as if the throat were "wooden," very frequently the sensation of a foreign body, variously described like a crumb of bread, a bone, a hair, a needle, &c., a constant desire to "swallow empty," feelings of heat or cold. Such are the paræsthetic sensations most frequently named. But in very many cases one sees how the patients vainly strive to exactly describe what they feel, and where the seat of the sensation is.

The infinitely less frequent "neuralgic" sensations are usually described as a fixed pain on one side of the throat, which sometimes radiates into the corresponding ear, and which is not increased, and even may be temporarily diminished by the act of swallowing. More rarely the patients complain of lightning pains shifting from one side to the other. The intensity of these neuroses varies, as already said, most remarkably. In the great majority of cases the sensations are merely

felt as an inconvenience or a nuisance, and this probably is one of the reasons why these cases are so much more frequently seen in private practice than at the hospital, it being a general experience that the neuroses of the climacterium are more frequently met with in women of the upper classes than in the lower orders. In other cases, and not a few, the subjective troubles are of a more severe kind. The patients not rarely actually cry whilst giving one the history of their ailment, and the general depression accompanying the affections is sometimes very marked indeed. In a good many of these cases there is a very distinct "cancerphobia," and a mere assurance after careful examination that there is no cancer suffices to completely transform the patient's previously frightened and anxious countenance. Fears of consumption and syphilis I hear much more rarely expressed. In the very worst cases, which fortunately in my experience are rare, the suffering appears to be extreme and the mental condition of the patient deplorable.

In a large number of cases the throat symptoms complained of are the only sign of the approaching change of life, and sometimes—to which I would particularly draw attention—even precede the menstrual irregularities. In another perhaps equally large number they either follow the usual uterine disturbances of the climacteric period, or are associated with other complications of the menopause, such as dyspepsia, waterbrash, flushes, sweats, rapid and considerable increase in bulk, neuralgia of other parts, debility and exhaustion, mental depression, cardialgia, sleeplessness, headache, &c. In a few instances very intelligent persons have spontaneously, whilst giving their history, expressed to me a belief that the throat symptoms complained of were a sign of the impending change of life. Much more frequently I have heard, when after examination I gave my opinion to the effect that the sensations complained of were merely a local expression of the change of life, that the patients themselves had suspected this to be the case.

The objective symptoms in the cases which really belong to the domain of the sensory neuroses of the climacteric period are either conspicuous by their absence or the changes found are so slight as to make it extremely unlikely that they could be held accountable for the symptoms complained of.

The prognosis in these cases is universally good. I have never known of a case in which these sensations persisted after the organism had once settled down to the new condition of life, whilst I have often had the opportunity of hearing from former patients of mine, whom I afterwards met by chance, that my cheerful prognosis as to the ultimate disappearance of their complaints had come true.

In making the diagnosis of a sensory throat neurosis of the climacteric period (which of course can only be arrived at *per exclusionem*), we have to guard against falling into one of two strictly opposite mistakes, namely, of either overlooking some actual and tangible cause of the affection, or, on the other hand, of accusing slight accidental abnormalities of being the real cause of the neurosis.

With regard to the first point it need hardly be said that there is not the least reason why women during the climacteric period should not suffer from any of the other well-known causes of sensory throat neuroses just as well as anybody at any other period of life. But I think it right to emphasise this point because I should be sorry if my attempt to establish the climacterium as a sufficient cause *per se* of sensory throat neuroses should lead anybody to rush into the erroneous conclusion that all sensory throat neuroses met with during that critical period must of necessity be due to the climacteric period alone. Thus, before arriving at the diagnosis of a sensory throat neurosis of the climacteric period, we must first exclude by careful examination the possibilities that the affection is due to chronic pharyngeal catarrh of a marked type, to considerable nasal stenosis, to a foreign body, to considerable enlargement of the lymphatic tissue at the base of the tongue, to general anæmia of the pharynx, particularly in cases of commencing tuberculous disease of the lungs, to general neurasthenia or hypochondriasis, to syphilophobia, &c. Particularly it ought to be remembered that paræsthesia, hyperæsthesia, or neuralgia of the throat may be the first sign of malignant disease of the part or of its neighbourhood, and that the age at which the climacteric neuroses come under observation is identical with that in which the beginning of malignant mischief is most frequently observed.

On the other hand, we must with equal care avoid accusing every trivial little alteration in the appearance and texture of the throat and its neighbourhood as the actual cause of the paræsthesia or neuralgia.

When, after exclusion of all other possible causes, I have come to the definite conviction that the neurosis is of a climacteric character, I have been gradually led to rely on moral efforts only, and to desist from all other forms of treatment. In the great majority of these cases the patients who (may it once more be said) are by no means of a neurotic or hysterical type, consult the physician only because they are alarmed about the unpleasant sensations of which they themselves cannot give any satisfactory account. When they see that their ailment is not pooh-poohed, and that, after a careful examination, the deliberate opinion is given that the sensations are merely due to the change

of life, and that when this opinion is coupled with the cheerful assurance that in not too distant a time they may with certainty reckon upon their disappearance, they are as a rule perfectly satisfied. This obtains particularly in those cases in which cancer or consumption or syphilis, or some equally grave disease, has been feared.—*British Medical Journal*, January 5, 1895, p. 3.

21.—ON LARYNGEAL PARALYSIS IN CHRONIC NERVOUS DISEASE.

By W. PERMEWAN, M.D., F.R.C.S.

[Abstract.]

That the bulb is often affected in locomotor ataxy has been known pathologically for some time to nervous physicians; it is to be hoped that in the future that relation will also be recognised clinically, and that physicians will look to the larynx, where the effects of bulbar damage are most easily to be seen. There is one disease, however, which is much more common than tabes, but allied to it in causation, symptoms, and pathology, the connection of which with laryngeal paralyses has not been fully or systematically investigated—namely, general paralysis of the insane. Of the cases of tabes recorded by Barger in his well-known monograph, it is noteworthy that a considerable proportion were affected either simultaneously or subsequently by general paralysis of the insane, and he quotes several suggestive remarks of various authorities on the relation between these two affections.

The author examined laryngoscopically 34 cases of general paralysis in the County Asylum, Rainhill. Of these only 3 were in the well-marked third stage, 9 were in the first stage, while the remaining 22 were in the varying periods of the second stage, including several said by the medical officers to be in the transition period between the first and second and second and third stages. The results were as follows :—

(1) *Character of the Voice*.—In some cases it was notably high pitched and monotonous—"sing-song" it might be called; in others it was quite normal. In only one case, where there was almost complete paralysis of one vocal cord, was any characteristic quality noted.

(2) *Sensibility of Pharynx and Larynx*.—In the early cases, mostly normal, but in nearly all the second and third stage cases it was notably diminished. In two cases there was hypersensitiveness of the pharynx.

(3) *Paralysis of Palate*.—In only two cases was there any want of power, one with a normal larynx, the other combined with bilateral abductor paralysis of the larynx.

(4) *Laryngeal Paralysis*.—In 7 there was more or less disturbance of laryngeal movement.

In all cases where signs of paralysis were noted repeated examinations were made, and in all cases confirmed by the opinion of Dr. Wood, the medical superintendent of Rainhill Asylum.

The author arrives at the following conclusions:—(1) That the larynx is not infrequently affected in general paralysis of the insane; (2) that this affects first and chiefly the abductors; (3) that this does not necessarily depend on the association of tabes dorsalis with the more generalised disease, but is the direct result of the degenerative and inflammatory changes which affect the central nervous system in general paralysis.

Disseminated Sclerosis.—In two cases examined the laryngeal muscles were unaffected.

Bulbar Paralysis.—The author lately examined one case in which he was able to watch the onset of abductor paralysis becoming absolutely complete, and the supervention on it of affection of the abductors. The other usual symptoms of bulbar paralysis were present in a marked degree.—*British Medical Journal*, November 24, 1894, p. 1170.

22.—DIFFERENTIAL DIAGNOSIS OF CEREBRAL TUMOURS.

By VICTOR HORSLEY.

[Dr. R. T. Williamson's abstract in *Medical Chronicle*, April, 1895:]

When a patient presents the classical symptoms of cerebral tumour—optic neuritis, headache, and vomiting, epilepsy, stupor, and paralysis—the diagnosis is usually easy. Nevertheless, there are cases in which meningitis, abscess, and uræmic poisoning give rise to similar signs. As regards meningitis, careful inquiry into the history and causation will prevent a mistake being made. Between acute abscess and cerebral tumour there ought to be no confusion, but a chronic abscess may so closely resemble tumour that a diagnosis is sometimes impossible until an exploratory operation is undertaken. Often elevation of temperature is looked upon as a characteristic sign in sub-acute abscesses; but Wilks pointed out many years ago that subnormal temperature is the characteristic feature to be looked for. As regards uræmia, the chemical and microscopical examination of the urine will be sufficient to indicate the presence of renal disease.

With regard to the important sign, double optic neuritis, the author mentions that, at his request, Mr. Marcus Gunn has measured the amount of swelling in different cases, and the results of his observations show that the swelling of the discs was most marked on the side of the lesion in the majority of cases, but that there were exceptional cases in which it was more marked upon the opposite side.

The author then refers to the probability of optic neuritis occasionally occurring in simple anæmia, and relates the case of a young lady who suffered from headache of a very severe character, optic neuritis, and sickness. The possibility of forming an early diagnosis depends on the character of the initial symptoms of a cerebral tumour. These are headache, epilepsy, and paralysis.

Headache in cerebral tumour may be diffused or localised. Diffused headache is, as a rule, an earlier symptom than the localised form. Examination for cranial tenderness, by pressure of the thumb over different parts of the skull *seriatim*, is of importance. No complete reliance is ever to be placed on pain in the head alone.

Epilepsy.—This is the most important initial symptom. The character of the convulsion may be various:—(1) It may be general, and so simulate idiopathic epilepsy; (2) it may be generalised, but preceded by a localised aura; (3) though generalised, it may also be commenced by localised muscular spasm; (4) it may be a typical Jacksonian fit, becoming in some cases more generalised, and in some followed by a certain degree of paralysis; (5) a cerebral tumour may evince itself by single spasms, not grouped as in a complete fit.

(a) *Frontal Lobe*.—Lesions of the frontal lobe appear to produce convulsions of the generalised type, and, above all, as Dr. Jackson has often pointed out, convulsions in which movements of a semi-purposive character are very prone to be exhibited.

The author then refers to a case illustrating another point of importance in the epilepsy of tumours of the frontal lobe. In the fit, the focus which commenced the disturbance was that for turning the head and eye to the opposite side. As the disease spreads from before backwards, naturally the first focus to become involved is that for the movement in question.

(b) *Parietal Lobe*.—The most common form of convulsion due to lesion of the parietal lobe is that known as Jacksonian epilepsy.

(c) *Parieto-occipital Region*.—The author thinks it is probable that in all cases of tumours of this region the convulsions will be found in the main to be generalised, and accompanied by ocular deviation and visual auræ.

(d) *Occipital Lobe*.—Tumours of the occipital lobe most commonly present generalised convulsions, hemianopsia from destruction of the cuneal region, and are not infrequently accompanied by so-called hysterical manifestations. Hemianopsia is also a frequent and, in fact, usual accompaniment of tumours of the parieto-occipital region, where the lesion burrows deeply, and so affects the optic radiations.

(e) *Temporal Lobe, outer surface*.—Convulsions from lesions of this region have been preceded by a sensory aura of an auditory type, also by amnesia. Where paresis follows, it is apt to be of a graduated type from pressure on the pyramidal fibres and areas of “motor” representation in the cortex.

(f) *Temporal Lobe, inner surface*.—In cases recorded the epileptic convulsion was signalised by the occurrence of hallucinations of smell and taste.

The author then points out that, whatever may be the nature of the fits in the subsequent progress of the case, the initial attack is very often a generalised one. Also, in certain instances, the attacks are sometimes localised, sometimes generalised in the same case. The more deeply seated the growth, the more generalised is the convulsion. As regards size, the larger the tumour the more generalised is its effect.

The importance of paralysis is next considered, and the author points out that frequently in cerebral tumours a general muscular weakness is present, which has often been confounded with simple neurasthenia. Paralysis may arise by direct destruction or pressure upon the so-called motor frontal-parieto cortex, or by pressure transmitted indirectly to the same part from a lesion situated at a distance.

As regards sensation, Horsley believes that Hitzig's view, that the so-called “motor” region is really sensori-motor, is the correct one. In extremely limited lesions of the so-called “motor” region in man, there is a certain degree of tactile anæsthesia, and also, as pointed out by Bastian and Hitzig, a loss of muscular sense. In examining for cortical anæsthesia it is necessary to screen the patient's eyes, and ask him to point to the exact spot touched. Horsley regards this combination of slight loss of tactile sense with loss of muscular sense as characteristic of a parietal cortical lesion.

In cerebral lesions the deep reflexes are exaggerated on the side opposite to the lesion, whilst in cerebellar lesions Russell has shown that they are exaggerated on the same side as the lesion.

In conclusion, Horsley points out that there is one great principle which seems to differentiate cerebral tumours from the great group of vascular lesions and their effect, namely, that during the weeks and months of the patient's illness the

symptoms in cerebral tumour are, if not masked by treatment, steadily progressive, and observation of their steady extension should always be looked upon as the most pathognomonic sign possible.

After six weeks' unsuccessful treatment with drugs, the author suggests that all cases of Jacksonian epilepsy should be explored (provided, of course, the sources of error above-mentioned have been excluded). Also, he regards the present practice of waiting till optic neuritis has developed as unjustifiable.—[“The Clinical Journal,” February 13, 1895.]—*Owens College Medical Chronicle*, April, 1895, p. 25.

23.—ON LEAD CONVULSIONS.

By D. D. STEWART, M.D., Lecturer on Medicine in the Jefferson Medical College, Philadelphia.

Of the various forms of cerebral disorder produced by lead, conjointly designated encephalopathia saturnina, the convulsive is by far the most common. The convulsive variety forms two-thirds, if not more, of all cerebral manifestations, and has the highest mortality. The term *convulsions* is here preferably used to designate the cerebral spasmodic disturbances of plumbism, as one less open to criticism than *eclampsia* or *epilepsy*, since it includes all the various forms of convulsive disorder of lead origin. Our knowledge of the intimate pathology of lead convulsions is yet too slight to permit the assertion that they are always due to a primary morbid state of the brain, whether chemical, molecular, or molar. They are often so far eclamptic in character that they lack the preceding general tonic contraction which usually forms the first stage of ordinary epilepsy; and, like eclampsia, the seizures are usually prolonged and have intimately admixed alternating tonic and clonic spasms. Like eclampsia, too, peripheral impressions may be intimately concerned in their onset, if not in their causation, since they often occur during the violence of colic; yet, though reflex disturbances may excite them, their intensity, duration, and lethality indicate that their origin and continuance are most likely dependent upon a primary cerebral disorder.

A careful survey of the literature of lead convulsions and a review of the cases herein reported, which includes all forms hitherto described except the more rare hystero-epileptic type, have convinced me that it is impossible to make any clinically exact systematic grouping of the various forms as Tanquerel did. A rough division might be attempted into an *eclamptic* and an *epileptic* group were the former used as a convenient though loose designation for those forms of convulsions of symptomatic

origin not of hysterical or strictly epileptic type. A number of cases that have come under my observation might be so designated, and yet certain others identical with them in many respects as regards symptoms leading up to the seizures, in type as regards the latter, might be classed as epileptic, so that each form blends actually with the other. A distinct and highly important and suggestive class, however, does exist, of which two instances have been observed by myself, in which the convulsions, though primarily symptomatic of lead-poisoning, indicative of changes so induced in the nerve centres, have become secondarily those of so-called "idiopathic" epilepsy, the fit habit probably becoming engrafted upon an already inherently predisposed brain, or one structurally damaged by saturninism as finally to succumb to its effects as regards healthy functioning. This is in accordance with our knowledge of the pathology of many cases of uncured "focal" epilepsy, or of organic leuetic nerve trouble, whether convulsant or paralyzant—after withdrawal of the primary cause—then, persistence of symptoms, as has been so ably pointed out by Hughlings-Jackson, usually signifies persistence of a residual or secondary cause, one originated by the primary irritant and of the nature of a high instability of certain cells, with constant proneness toward discharge. As I have elsewhere stated, cases of actual epilepsy of lead origin, though rare in literature, may be of much more frequent occurrence than is generally supposed.

The duration of the period between first exposure to lead and the development of cerebral symptoms is a variable one, depending upon several factors, the chief of which are probably inherent susceptibility (age and sex) and severity of poisoning. In some cases convulsions may occur surprisingly early; in a less number their advent may be delayed for years, during which more or less constant symptoms of plumbism may be manifested. In one of my cases convulsions appeared on the fifteenth day after exposure; in thirty-two days in a second, thirty-three days in a third; a trifle less than three months in a fourth and fifth; four months in a sixth; four and two-thirds months in a seventh; about six months in an eighth, and in a trifle less than eight months in a ninth. In a tenth, a coach-painter, in whom there were no indications of renal disease, the period of exposure extended over a period of some twenty years. In the remaining six I could not ascertain with certainty the exact intervals. Those of my cases in which convulsions appeared earliest were children. The instability of the nervous system of these naturally renders them the more susceptible.

It is generally thought that a more continuous exposure, which is equivalent to severer poisoning, is required to cause cerebral symptoms than to produce cachexia, colic, arthralgia, the usual

manifestations of plumbism ; and for this reason Naunym has asserted that cerebral accidents occur only among workers in lead, in those whose occupations favour a copious absorption of the metal. Bramwell regards this as an important point in diagnosis. He states that he is unaware that cerebral accidents occur in plumbers, painters, and others who so commonly suffer from the milder manifestations of plumbism, but that they are limited to those employed in the manufacture of lead compounds. Though this is perhaps true in most cases, too great dependence upon occupation as a factor in diagnosis may readily lead to error. Cases have been recorded occurring in filegrinders, and Putnam has reported several suggestive cases of epilepsy in the urine of which lead was found : the only discoverable source of poisoning in these last was drinking water. Tanqueral, in France, found painters of buildings only less susceptible to lead encephalopathy than manufacturers of lead compounds. He recorded cases occurring among plumbers and painters. Numerous cases are also mentioned in current French and German literature occurring in painters and in glaziers of pots.

None of my cases was engaged in the manufacture of lead compounds. One is a coach-painter, who for a year or so before the onset of convulsions used chrome colours. Two were handlers and mixers of chrome-yellow in a dye-house. Two were bakers who used chrome-yellow freely as a cake-dye, and, unaware of its poisonous nature, ate the products of the shop. Poisoning in the remaining eleven occurred through eating the lead-dyed cakes. The fondness exhibited for the dyed buns by the poisoned was remarkable. Inexpensive in price, attractive and wholesome in appearance, they were often the staple food of many families at breakfast, lunch, and supper, and at these meals frequently replaced bread. As chrome-yellow was unsparingly used in their composition, it is not surprising that profound lead intoxication occurred early through their consumption.

It is well recognised that, preceding the development of the cerebral manifestations of plumbism, certain remote and immediate symptoms are common. When present, the assemblage of the former, representing at least such characteristic signs of lead intoxication as a blue line, cachexia, colic, arthralgia, or paralysis, presents errors in diagnosis which might otherwise arise. Of Tanqueral's seventy-two cases of lead encephalopathy, exhibiting various forms of cerebral disorders, but six showed no premonitory symptoms. Out of twenty-eight cases of lead convulsions the histories of which are reported in the past two decades, colic is noted as preceding for a variable period in twelve. Colic was more frequently observed than paralysis or arthralgia, but was of less common occurrence than anæmia, the

typical cachexia, and a blue line in the gums. The pre-existence of ordinary symptoms of plumbism apparently depends largely upon the duration of the period of exposure prior to the appearance of cerebral accidents. Should it happen, as is often the case, that convulsions appear early, only immediate if any premonitory symptoms may be looked for, except, perhaps, some anæmia and a blue line. In eight of sixteen cases the ordinary symptoms of lead intoxication were more or less decidedly evident for some time preceding the onset of the convulsions. All of the eight had colic. In most of them it was associated with frequent vomiting of a yellow-coloured fluid resembling bile. In one of the eight severe colic was not complained of until immediately succeeding the first convulsion. It then continued for two or three days, following which a second spasm occurred, rapidly followed by others. These continued until death. In another of the eight colicky pains rather than distinct paroxysms of lead-colic occurred. In this case attacks of nausea and vomiting were more prominent than symptoms of colic. Similar colicky pains, without any distinct attacks of typical lead-colic, occurred in one other of the cases.

Very severe arthralgia was present in but two. In two others joint pains, though more or less constant for some time, were of no great severity. As far as could be ascertained, vomiting and pronounced constipation occurred as a remote prodrome only in the cases with colic. As a precursor of convulsions, vomiting was present in several others who exhibited none of the more common symptoms of plumbism. Paralysis of the extensor muscles of the forearm (wrist-drop) did not occur in any of the sixteen.

The blue line was presumably present in all. Circumstances did not permit a search for it in all of the sixteen. In those cases, however, in which an *intra-vitam* diagnosis was made the line was invariably found. In several in whom the poisoning was recent, unless on the watch for it, the line might have escaped notice, as it consisted of but a narrow bluish-black streak in the margin of gum about the neck of one or two bicuspidis or an anterior molar.

Evidences of marked impairment of the general health, preceding for some time the advent of convulsions, were manifested by nearly all save those in whom convulsions developed very early after exposure. Many showed an earthy-yellow hue of skin. In five cases occurring in one family, the members of which had all previously been in good health, it was recalled by the parents that for days or weeks preceding the outbreak of eclampsia all had grown restless and sleepless at night, and were fretful and irritable by day. In all, too, without there being evidences of pronounced colic, indigestion was present, and in

several colicky pains occurred. In all the cases that I saw arising from eating poisoned buns (chrome-yellow) there were also present heavily furred tongue and offensive breath.

Most of the chrome-yellow bun cases, of which an accurate history could be obtained, were noted to have had, for a day or so preceding the onsets of fits, severe continuous headache, worse at night and associated with insomnia. In several, the headache was excruciatingly severe. With it vomiting was also frequent. In another, headache was constantly present for three and a half weeks before the first fit, but was not at first unbearable. It however became so about ten days preceding the convulsions, and continued violently severe, with colic and joint pains, until the outbreak of spasms. Total failure of memory for two or three weeks preceding the outbreak of convulsions was a notable symptom in the case of a chrome-yellow mixer. He was cachectic and had had colic and arthralgia, which lessened with the onset of cerebral symptoms. He had severe constant headache, with nocturnal restlessness and delirium.

In several of the sixteen it was remarkable that no precursors were observed, except in two—vomiting. One case was at play with a sister when the seizures occurred, which terminated fatally, despite active treatment, in twenty-eight hours.

It is regretted that in none of the acute cases of convulsions was an examination of the eye-ground made, so that the likelihood of the existence of optic neuritis, so commonly present in subjects of lead-poisoning with pronounced cerebral symptoms, can only be conjectured. The extreme frequency of the presence of optic neuritis in this class, associated with headache, vomiting, and convulsions, leaves little doubt of its probable existence, though undetermined, in those in whom the cerebral symptoms were severe. In but one of the four cases that I personally saw when convulsions were occurring was the examination feasible. In this, unfortunately, it was omitted.

As regards character of seizure, all of the sixteen but three displayed more or less the usual pernicious tendency of acute lead encephalopathic seizures in frequency of repetition and lethality of termination.

In one case the collective seizure forming what has been termed the *status epilepticus* lasted twenty-eight hours. At its termination, immediately preceding death, the axillary temperature, from the normal with the onset, rose to 107° F. A similar and indeed greater rise is not uncommon in the *status epilepticus* of idiopathic seizures, as was first remarked by Bourneville. In another case in which the collective seizure lasted twenty-three hours, the temperature did not exceed 102½° F. at death. In this case the premonitory symptoms were much more suggestive of an inflammatory cerebral disorder.

Two cases belong to a class distinct from the others. They are of unusual interest, suggesting as they do the likelihood of lead-poisoning sometimes originating so-called "idiopathic" epilepsy. These two cases are not unique. Putnam relates several similar, as do also Schultze and others. Cases of this class may be of not uncommon occurrence. The multitudinous uses to which lead is put in civilised life—apart from the industrial sources of poisoning, the multitudinous accidental and unsuspected ones, a fraction only of which is generally known—render this metal the most ubiquitous and subtle of poisons. A consideration of the innumerable applications that are made of lead preparations may not infrequently throw light on cases of deterioration in health obscurely arising, and likewise, perhaps, sometimes explain the development in those with unstable nervous systems, and especially in the young, of convulsive disorders which, unchecked eventually gravitate into ordinary epilepsy. There is no doubt that the convulsions of chronic lead-poisoning are sometimes mistaken for those of ordinary epilepsy, resembling the latter, as they may, in character and course. How frequently the error arises even systematic inquiry would still render it difficult to determine accurately. The resemblance between convulsions of lead origin and the so-called "idiopathic" epilepsy may be not only clinical but pathological. We dare not now infer, in the light of recent research, that the mere absence of detectable macroscopic and microscopic changes in the brain of an epileptic necessarily renders the epilepsy idiopathic, for in cases of lead encephalopathy terminating fatally the brain has been found to all appearances normal, and yet chemical examination has shown the most vital alterations in the gray matter, sufficient to cause the protean cerebral manifestations of plumbism. Instability of gray matter, its constant tendency towards discharge, the not unlikely cause of the phenomena of epilepsy, seems easy of explanation; though a careful consideration of the investigations of Blyth, to whom we owe the knowledge of the important fact that the specific pathological cerebral effect of plumbism is not merely a structural change, but one of composition not detectable by ordinary means of pathological research—that it consists in a chemical combination of the lead in the brain with the complicated nitrogenous and phosphorised brain-fats, forming a definite substitution-compound to lead cephalin, in which a molecule of hydrogen is replaced by one of lead.

If there be nothing in the character of seizure in certain cases of lead convulsions to differentiate them from the fits of ordinary epilepsy, and the common symptoms of plumbism, as is often the case, be so slight as to escape notice, the observer not being especially on the watch, errors in diagnosis may readily enough

occur. The oversight would be, of course, the more venial if, with lack of unequivocal symptoms and presence of obscure and unusual source of poisoning, the case came under observation years after development of the seizures.—*The American Journal of the Medical Sciences*, March, 1895, p. 290.

DISEASES OF THE ORGANS OF CIRCULATION.

24.—THE REMEDIES EMPLOYED IN CARDIAC AFFECTIONS AND THEIR INDICATIONS.

By THOMAS R. FRASER, M.D., F.R.S., Professor of Materia Medica and of Clinical Medicine, in the University of Edinburgh.

We now realise that when we administer digitalis, we do not, as was formerly supposed, in any true sense produce a sedative action on the heart, but the much more valuable one of strengthening its contractions and thus increasing its capability to overcome causes impeding the circulation of the blood.

This important fact in the action of digitalis having been ascertained, it has since been found that there are many other substances which also are able to produce these effects. While possessing the same chief effects as digitalis, and therefore being properly grouped along with it in action and therapeutic capabilities, it has also been found that differences exist among them in regard to physical properties and pharmacological effects.

Each of the substances in the group is able to strengthen the contractions of a labouring and disabled heart; but there can be no doubt that, owing to the special nature of the disability or the relative frequency of its occurrence, there are certain forms of cardiac affection in which more frequently than in others is exemplified the success with which the many and distressing consequences of cardiac disability may be removed by them. General experience concurs in assigning this position to the cardiac disability produced by mitral valvular disease, and especially to regurgitation at this orifice.

In both stenosis and regurgitation at the aortic orifice the left ventricle usually accommodates itself to the difficulties that are produced, and, especially in stenosis, the compensation thus spontaneously produced may continue for an indefinite time. Injury rather than good is done in these circumstances by the administration of any substance of the group I am now considering. The heart is unduly stimulated and the muscle of

the left ventricle becomes hypertrophied beyond the needs of the circulation. The nutritive requirements of the unnecessarily hypertrophied heart become increased, and they may at any moment, and from a diversity of causes, in themselves of trivial importance, become insufficient to maintain the myocardium in a condition of health. Compensation is thus destroyed, and the very evil which should most carefully be guarded against in aortic disease, and which, perhaps, in the course of time inevitably occurs in the majority of cases, is precipitated by improper treatment. This evil is all the more likely to be produced if the substance administered is not only a tonic of the heart-muscle but also of the bloodvessels; and, even more, if its constricting action on bloodvessels exceeds its power to increase the contractile energy of the heart's muscle—the characteristics, as I shall afterwards point out, of the action of digitalis. But even while compensation is being fairly well maintained in aortic disease, the mere mechanical results of the hypertrophy that has produced compensation, the pathological changes that so frequently occur in the hypertrophied muscle long before asystole takes place, and the advance of the arteriosclerosis so usually associated with aortic disease, originate a group of symptoms widely differing from those encountered in uncomplicated auriculo-ventricular lesions. They constitute the phenomena of that most distressing condition, cardiac angina; but even when present in their most severe type they are not in themselves indications for the administration of cardiac tonics. Their successful treatment, in the absence of independent evidences of non-compensation, is rather to be found in the administration of opium and similarly acting bodies, of nitro-glycerine and nitrites, and of arsenic and iodide of potassium. The most certain of these remedies is opium, but there are circumstances in which the others also are administered with valuable results. As to nitro-glycerine and the nitrites, while recognising their great value in many cases, and especially where the heart symptoms are aggravated by bronchial spasm, I have found that, like probably all other remedies employed to cure a group of symptoms originating from a diversity of causes, they not infrequently fail to give relief. The powerful and rapid action which they possess in dilating bloodvessels is believed to supply the explanation of their therapeutic benefit. In regard to this explanation, and to the spasm of bloodvessels as a cause of the angina, which is implied in the explanation, I have observed angina to occur while the arterial tension remained low, and nitrites to succeed where no obvious effect was produced upon the tension, and I have also observed nitrites to fail where a high tension was greatly reduced by their administration.

As to the administration of iodide of potassium, I am unable to recognise any sufficient modification of the circulation produced by it in therapeutic doses that can afford an explanation of the benefits following its administration. In large doses, it undoubtedly quickens and enfeebles the heart's contractions, but at the same time it renders them irregular.

And, almost inevitably, in the course of time, cardiac degeneration occurs in aortic disease. The hypertrophied heart-muscle is no longer able to maintain a sufficient circulation; dilatation with auriculo-ventricular regurgitation frequently occurs; and, whether this complication exist or not, the symptoms of cardiac insufficiency that are produced are indistinguishable from those of auriculo-ventricular regurgitation. It is now that the administration of cardiac tonics is indicated, and in many instances they, for a time at least, produce as remarkable therapeutic results as in the non-compensation of auriculo-ventricular lesions.

It is not, however, only in the cardiac insufficiency of valvular lesions that the members of this group of substances prove of service. Weakness of the heart's action, producing effects similar to those of the weakness resulting from non-compensated valvular disease, may be caused by degenerative changes in the myocardium itself; and whether thus caused or not, it may also occur during pyrexia, and there constitute an important danger to life. Fortunately, in both circumstances, efficient remedies are found among the cardiac tonics.

I have obtained similar satisfactory results in many cases of pneumonia, as well as in the pyrexia of phthisis and of pleurisy. In the latter disease, I have been in the habit of using strophanthus for two objects—in order to restore to normal conditions a weak and dicrotic pulse, and in order to prevent, or at least lessen, the likelihood of recurrence of pleuritic effusions after thoracentesis has been performed, by the stimulation of the kidney action. The successful attainment of the former object has been frequently demonstrated. It is, however, obviously impossible to demonstrate the successful accomplishment of the latter object, as it cannot be predicted in any case of pleurisy that an effusion will reappear. A scanty elimination of urine has, however, in many instances been changed into a copious one; and thus a condition has been produced unfavourable to a re-accumulation of fluid in the pleural cavity.

It is almost unnecessary to point out that these substances, whose essential action is to increase the contraction of muscular fibre, cannot always succeed in relieving the symptoms of heart disease. Failures are only too frequently encountered; but I believe that the therapeutic efficiency of several of these

substances is so great that in only three conditions need failure be anticipated, placing out of consideration opposing conditions outside of the heart, such as great œdema of the lungs, extensive bronchitis, and large pleuritic or pericardial effusions, for whose treatment special measures are required. These are, firstly, in degenerations of the myocardium so far advanced that adequate contractions of the heart cannot be originated ; secondly, in mechanical obstructions of the circulation, caused by valve leakage or stenosis so extreme that no possible increase in the strength of the heart's contractions can produce a sufficient circulation of the blood ; and, thirdly, in a combination of degeneration and of the mechanical effects of valve lesions, where each separately would be insufficient to cause failure, but where the combination is sufficient to do so.

It may be useful to consider the more important of the other members of this group of remedies, in respect at any rate, to any special characters which they have been found to possess. So far as experiment has proceeded, *strophanthus* occupies the first position in the action which is produced on the contractile power of the cardiac muscle. It increases the contraction of this muscle with a smaller quantity than any other similarly acting substance, and with a rapidity unequalled by any of them. The rapidity of its action finds an explanation in the facts that the active principle is soluble in less than its own weight of water, and that it possesses the diffusibility of a soluble crystalloid. If, in these respects, it be contrasted with *digitalis*, it is found that the latter substance has a relatively complex composition, and that several of its active principles are insoluble in water.

There is, on the other hand, another aspect of the action of these substances in which the advantage may lie with *digitalis*. The condition of the circulation is dependent not only upon the contractions of the heart, but also upon the state of the bloodvessels. It has long been known that *digitalis* possesses the power of causing contraction of bloodvessels, and thus of increasing blood-tension. It is not, perhaps, always appreciated that its action in this respect is probably greater than its action on the heart. Its influence on the bloodvessels is due to a direct effect upon them, and is, therefore, produced even when the bloodvessels are entirely separated from the vascular nerve centres. When contrasted with *strophanthus*, the most active of the soluble principles of *digitalis* exerts at least fifty times a greater contractile power upon bloodvessels than extract of *strophanthus* or than *strophanthin*. While this difference may constitute an advantage in cases where weakness of the circulation is due more to the state of the bloodvessels than to that of the heart, it is not to be overlooked that it may,

in the contrary conditions, constitute a disadvantage by increasing the difficulties to be overcome by an already enfeebled heart. Although it is not within my experience, still it may undoubtedly occur that the relatively feeble action of strophanthus upon bloodvessels may somewhat restrict its usefulness as a diuretic. On this point practical experience alone can supply evidence. The diuretic action of heart-remedies of this group cannot be satisfactorily determined by pharmacology. None of them has been clearly shown to possess any diuretic action in health, operating in a definite and constant manner. In disease, their diuretic action chiefly depends on the changes they produce in the circulation of the body and of the kidneys.

It is unnecessary to make more than a brief reference to the more commonly used of the other substances which possess this fundamental action of increasing the contraction of the heart muscle. The more important of them are caffein, convallamarin, helleborein, scillitoxin, and adonidin. It may be interesting to remark that when the energy of their action on the heart is determined by perfusion experiments, strophanthus extract is found to be 8 times more powerful than adonidin, scillitoxin and erythrophlein, 20 times more powerful than helleborein, 30 times more powerful than convallamarin, 300 times more powerful than some specimens of digitalin, 3,000 times more powerful than others, and 30,000 times more powerful than caffein. None of them, however, act so powerfully upon bloodvessels as digitalin.

As to spartein, it slows the heart rather by weakening its systole and thus delaying the cardiac contractions, than by increasing the strength of the contractions. Its action is not, therefore, of the same kind as that of strophanthus and the other substances that act as it does. It has no direct action on the myocardium, but only on its regulating nerves; and even this can be produced only by large doses. By this regulating action, however, it may prove useful in certain forms of cardiac insufficiency, and may also increase the flow of urine.

I have thus made some reference to the more important members of the most important group of cardiac remedies. Notwithstanding the infinite variety of conditions presented by heart diseases, the simple indication for their use is the existence of cardiac insufficiency.

I have not discussed many therapeutic measures which are every day usefully adopted in the treatment of heart diseases, such as special measures for increasing the removal of accumulated liquid, both pharmacological and mechanical, venesection, and, in the absence of marked phenomena, of non-compensation, the employment of arsenic, strychnine, and graduated physical

exercise. In association with these latter measures, and exceeding them all in importance, I would, in conclusion, enforce the importance of rest. It is not only a requisite in the more severe, but also in the mildest forms of non-compensated cardiac disease ; and it has over and over again come under my observation that, with the simple aid of a regulated dietary, it has been sufficient to remove, not only the cardiac symptoms, of mild non-compensation, but also those of more aggravated cardiac insufficiency, including even œdema of a limited part of the body. And by rest I also mean the avoidance of the unnecessary exertion of the heart, only too frequently produced by the administration of digitalis, or some other similar substance, whenever a cardiac bruit is detected, and without due regard to the actual requirements of the circulation.—*Edinburgh Medical Journal*, April, 1895, p. 865.

25.—THE TREATMENT OF CHRONIC AFFECTIONS OF THE HEART BY BATHS AND EXERCISE.

By W. BEZLEY THORNE, M.D.

Although the Schott methods of treating affections of the heart were brought under the notice of the medical profession in England in 1891, it is only within the present year that they have attracted even a small share of the attention which, as therapeutic agents they unquestionably deserve.

The system consists of two methods of treatment—that by baths, and that by remedial exercises or movements. Broadly speaking, the immediate effect on the heart and blood vessels of immersion in water, whether holding in solution a number of mineral and gaseous constituents or relatively pure, depends on the temperature of that medium ; and it may at once be stated that the range which is available for the therapeutic purposes in question lies between 85° and 96° F. The effect of the immersion is at once to increase the volume and diminish the rate of the pulse.

Mineral baths, whether endowed by Nature or by artificial means with suitable ingredients, may be said to produce the following immediate and rapidly ensuing results :—a marked diminution of the rate of the pulse, an equally notable increase in its volume and force, a glow of warmth extending to the extremities and imparting to them a heightened colour, and an enduring sense of refreshment and invigoration. No less obvious are the influences they exercise on the respiration and on the size of the heart. During the first two or three, or even five or six, minutes of immersion, the breathing becomes

oppressed and laboured, and sometimes a sense of constriction is experienced in the epigastric and lower anterior costal regions, while, at the same time, the area of cardiac dulness diminishes to a degree varying from a third to about half an inch in the healthy, to an inch or more in the dilated heart, as measured in the oblique transverse diameter. These effects are not transitory. The area of dulness, the force, volume, and rate of the pulse, all show a tendency to return within the following twenty-four hours to the initial standard, but each successive day, with its bath of graduated strength and duration, brings its instalment of gain, which leads to a recovery which in some cases is partial, and is, happily, in many complete. At the same time an enlarged liver may be observed to diminish in vertical measurement, prominence, and sharpness of edge, while sometimes within the first day, and almost invariably within the first two or three, a free diuresis, which may last in greater or less degree throughout the bathing course and after it, is generally found to have been established.

The other and perhaps in some respects more remarkable method consists, as already indicated, of movements or exercises. Their originators have designated them *Widerstandgymnastik*—a term which literally translated into “resisted gymnastics,” might convey a misapprehension to the English mind. They consist of movements which should be performed under the immediate direction of the physician, subject to a certain measure of resistance offered either by him or by a carefully trained assistant, and successively applied to the upper extremities, trunk, and lower extremities.

Any detailed description of the influence which these movements exercise on the heart, pulse, and abdominal viscera would be a reiteration of what has been said of the effects of mineral baths on those organs. In most respects they are identical, but it must be observed that as regards the diminution of the pulse rate, the influence is neither exerted so rapidly nor so marked in degree. On the other hand the movements yield the more rapid and striking results in reducing the area of cardiac dulness while the baths may be regarded as exercising the more profound and enduring influence on the nutrition on the cardio-vascular tissues and those of the system generally. These points of difference are of obvious practical importance. Both methods are capable of bringing influences to bear on the heart and blood vessels, the importance of which it would be difficult to exaggerate; combined they are capable of producing effects which throw the action of drugs completely into the shade; judiciously directed and skilfully applied, they are capable of yielding therapeutic results the importance of which can scarcely be overestimated.

It would, perhaps, be interesting to inquire by what means such remarkable results are produced. My own view is that, if there be any difference in the matter of precedence between the effects produced on the heart and vessels respectively, it is the latter which are first brought under influence ; that the general, and especially the capillary, vascular capacity being increased, the carrying and containing power of the vessels is proportionately increased, peripheral resistance is reduced, and the heart is at once placed in the position of being an organ of relatively greater driving power. That the vascular capacity may increase independently of, or out of proportion to, the driving power of the heart is shown by the symptoms which may be induced by no more than two or three movements where there exists some obstacle to the rapid filling of the arteries, as is the case in obstruction of the pulmonary circuit from emphysema and other causes, and where the aortic orifice is rigid and unyielding. Under such conditions, unless the movements be most carefully regulated and perhaps administered in the recumbent position, facial pallor and yawning supervene, and may be rapidly followed by syncope.

In considering the effects which may be produced in the circulation by both baths and exercises, it must not be forgotten that analogy would point to the coronary system and the *vasi vasorum* as enjoying their full share in those beneficial changes which have been described. Clinical experience yielding, as it does, evidence of the gradual repair of myocardial and vascular tissues, confirms that hypothesis.

We are now naturally led to inquire what affections of the heart and blood vessels may, with advantage, be treated by these methods. The reply, briefly summarised, might be: those in which therapeutic indications point to the reduction of peripheral resistance ; to the relief of a weakened, incompetent labouring dilated heart with or without valvular lesion ; and to the repair of damaged or degenerating cardiac and vascular structures. It will at once be recognised that the range is very wide. Dr. Schott, until recently, excepted only those conditions which involve advanced arterio-sclerosis and aneurism of either the heart or one or more of the great vessels. He is now disposed to withdraw his reservation as to the latter class of cases, and I confess that I am of the same mind. Indeed it seems to me that measures calculated at the same time to repair vascular tissue and to reduce peripheral resistance must be pre-eminently suited to meet the exigencies of at least early cases of aneurism.

Speaking generally and for myself, I may say that out of 85 cases of which I have preserved records, one failed to derive benefit from the exercises, and had no opportunity of making

trial of the baths ; two died in the course of treatment. They were both men in comparatively humble circumstances. One was the subject of mitral disease, with loss of compensation and enormous dilatation. During the cold weather of the current year he contracted capillary bronchitis, upon which supervened inflammation of an enlarged liver and eventually cardiac thrombosis. The other was the subject of patent foramen ovale. He improved under treatment by exercises to the extent of gaining complete relief from cyanosis and dyspnoea ; but one extremely hot night during the past summer he removed his vest, and sat uncovered before an open window. Acute hepatitis was followed in a few days by death.

It would be difficult to pass from this aspect of the subject without glancing at some of the more important collateral but physiologically consistent effects of these methods of treatment. In many cases changes, as indicated by the following results, are induced in congested abdominal viscera, namely : relief of gastric and intestinal catarrh and of the attendant deviations from normal digestion with distension ; reduction in the size and prominence of an enlarged liver ; relief, either partial or complete, of albuminuria, and of acute initial dysmenorrhœa. As regards the respiratory organs, pulmonary resolution—as indicated by the rapid subsidence of crepitatic redux—has been observed to take place, as well as marked relief in cases of long-standing asthma and emphysema. Perhaps most striking, although most easy of explanation, is the repair of the blood itself. Without recourse to chalybeate remedies colour returns, not infrequently within a few days, to the face of the anæmic, especially in chlorosis and dyscrasia due to malarious poisoning or to the presence in excess of uric acid. For œdema of the lower extremities, ascites, and hydrothorax due to feeble circulation there exists, I believe no such effectual measure of relief.

I must not omit a reference to the psychological influences of the treatment, for it is perhaps of all the most interesting and suggestive. No one can have observed the subjects of failing or permanently impaired heart strength without being struck with the suffering they endure from loss of power of mental concentration and of control over the emotions, from intolerance of sharp and sudden sounds, and, above all, from the gloom and despondency, not far removed in degree from melancholia, which too often settles on their spirits. The manner in which these allied miseries give place to hope, courage, buoyant spirits, and mental vigour, synchronously with the contraction of a dilated heart and the improvement of the peripheral circulation, is one of the most agreeably surprising therapeutic results that has ever come under my notice. This consideration appears to

me to derive additional importance from the joint consideration of the following two observations : That a considerable proportion of cases of heart dilatation are found to have followed in the train of influenza, and that that disease is a by no means infrequent precursor of melancholia. Interesting as the suggestion is to myself, I should scarcely have ventured to allude to it but for the fact that Dr. Savage informs me that he has traced a considerable proportion of cases of melancholia to influenza, and that his observations led him to regard an abnormally rapid pulse, unaccompanied by rise of temperature, or even in some cases associated with deficiency of body heat, as pathognomonic of that special class of cases.

With regard to diet, in the first place the Schott system recognises no restriction in the amount of fluids ingested. For my own part, I would go so far as to say that in many cases the more fluid, and especially the more water, the patient drink the better, provided it be taken under such circumstances as would not effect undue dilution of the juices of the stomach during the period of gastric digestion. The greater part of the patients who come under treatment are suffering from, if not indeed in consequence of, the concentrated state of the blood in respect of uric acid and other ingredients whose presence in excess is due to deficient oxygenation and defective elimination. The limitation of fluids increases the relative proportion of poison in the blood stream, irritates arterioles and capillaries into contraction, and so increases peripheral resistance and checks elimination. It would be difficult to conceive of circumstances more adverse to a labouring, and perhaps disabled and degenerating, heart. With regard to solid food, it must be borne in mind that a quickened circulation, with enlarged vascular capacity and increased oxygenation and general metabolism, creates an imperative demand for nutrition of high physiological value ; that a large proportion of the patients under treatment are the subjects of uric acid storage in the blood and tissues, and that in a certain number of cases that condition exists with the undue deposit of adipose tissue.

The ingestion of the fermentable and acid and fat-forming carbohydrates should, therefore, be regulated according to the circumstances of each case, and, in the class last specified, to a great extent withheld, and three substantial meals of animal food—consisting in due proportion of fish, birds, and butcher's meat, tempered with an abundance of succulent vegetables—be insisted on. Such limitation or withdrawal of carbohydrates and substitution of nitrogenous foods, combined with the drinking of water at proper times and in regulated quantities, may be relied upon in a great number of instances to free the system from excess of uric acid and to restore the body to its

normal weight, whether the previously existing dyscrasia have resulted in excessive deposit of fat or in loss of weight. In the last-named cases a liberal quantity of milk may be taken in one of the many forms in which it can be prepared for the table without admixture with farinaceous substances.

I will now only turn for a moment to the objection most frequently advanced against the effects which it is claimed that the therapeutic movement has upon the dimensions of the heart, namely, that the diminution of the area of cardiac dulness is due to increased pulmonary inflation. In reply, it may be pointed out in the first place that increased inflation of the lung would not account for the indisputable physiological and therapeutic results of the treatment; that where the horizontal plane of the diaphragm changes as the result of the movements, it is found to rise and not to fall. There is one argument, however, which appears to me to be conclusive. It is that, under the influence of both baths and exercise, an apex beat appreciable by sight as well as touch may be observed in a few minutes to migrate towards the mesial line and at the same time to increase in force. —*British Medical Journal*, March 9, 1895, p. 524.

26.—ON THE GOUTY HEART AND ITS TREATMENT.

By J. MITCHELL BRUCE, M.D., F.R.C.P., Physician to
Charing Cross Hospital.

In this paper I desire to review the phase of simple disturbances of the cardiac functions, motor and sensory, and of temporary disability, occasionally met with in gouty persons. I accept as evidence of the gouty nature of a cardiac disorder various circumstances, or combinations of circumstances, which may be stated briefly as follows:—(1) A personal history of declared gout, present or previous; (2) a personal history of free living, and usually of hard work, with occasional explosions suggestive of irregular gout, in the form of hemorrhage from the bowels, intestinal fluxes, sick headaches, irritability of the bladder, eczema, insomnia, and fits of irritability or depression; (3) relief of these symptoms by treatment directed against gout—purgatives, exercise, spare living, and various alkaline salts; and (4) a family history of gout, megrim, gravel, glycosuria, asthma, and their allies—well marked, direct, and often on both sides. In the presence or with a history of these circumstances, or of various combinations of them, I should suspect the gouty nature of an attack of cardiac disturbance; and if there were no structural cause to be discovered I should consider myself justified in calling the attack definitely gouty.

The subject of this affection is commonly a man, about 40 years of age or a little more, come of gouty stock. He has reached that period of life when the industrious application of a clear and active brain has brought him much work of a responsible, and perhaps a sedentary, worrying kind, has left him few opportunities of exercise in the open air, and has surrounded him with the means of comfort and self-indulgence. The man has grown stout; and in his anxiety on this account he has made various experiments with his diet, and returned in an irregular, spasmodic, ill-considered fashion to his old habits of muscular exercise—used the clubs, played tennis, ridden a tricycle, rowed, or visited Switzerland and climbed the mountains. In spite of these measures (which indeed, as I have said, are usually ill-planned) his health, he tells us, is not satisfactory. He often suffers from sudden small pains in the joints. He may have had lumbago or sciatica, or both. Patches of irritable dry eruptions have appeared on the skin, or even an attack of developed eczema. He is plagued by dryness of the throat if he drink champagne, by flatulent dyspepsia with giddiness, and by intense nervousness, irresolution, irritability, and depression. His bowels are relaxed, or he suffers from actual diarrhoea of a peculiarly “lowering” character. Insomnia will sometimes make its appearance, driving him to seek relief from chloral—without success, or even with aggravation of his distressing condition. Perhaps he has bronchial catarrh with spasms, harsh cough, sneezing, fits of tightness of the chest whilst he is dressing in the morning, perhaps irritability of the bladder or actual urethritis, and it is possible that his urine has been found to be saccharine.

It is at this period of his history that our patient becomes aware that there is “something the matter with the heart.” He has indulged, willingly or unwillingly, at the dinner table, perhaps once only, perhaps more often; and in a fit of repentance, and for the purpose of correction of his error, he has recourse to bodily exercise the next day. He goes for a long walk, or for a ride on his tricycle. During the bout of exertion (or it may be after it is over, and he has reached home or even retired to sleep) the patient is conscious of a distressing sensation in the præcordia—most likely behind the middle of the sternum. This is pain, or it may be but “oppression,” driving him to unbutton his vest, or to unfasten his jersey, which seems to him to gird him too tightly. If the attack occur during exertion he has to pause, looks anxious, and clings to the nearest support. In many instances the paroxysm is anginal. There may be no palpitation, unless the attack has come on in bed, when irregular cardiac action—“fluttering”—is common. In either case the mind becomes anxious. A sense of weakness or faintness

pervades the chest and head, the extremities become chill, and a cold sweat breaks out on the surface of the body. Presently abundant flatulent eructations occur; and with these the distressing sensations, and the attack as a whole, pass away.

This account of the acute phases of the disease will not blind us to the fact of its essential chronicity. The history of this patient subsequently to a seizure may be various. He may continue to suffer from post-sternal discomfort of different degrees, or even from angina, as often as he walks fast or mounts an acclivity. For months he may present irregularity of the pulse, with various disturbing sensations in the præcordia. He becomes anxious and distressed in mind, speaks and acts like a hypochondriac, cannot shake his mind free from the suggestion of heart disease and threatening death which these sensations provoke, and which may be strengthened by the unhappy or alarming opinions which he elicits from the doctors he consults. Or he is taken with acute gout, which to his surprise and satisfaction "cures" the troubles at his heart. And he may then have no return of his cardiac symptoms until he is again incautious in eating and exercise, but suffers irregularly from mental depression, insomnia, and other gouty manifestations.

The pain complained of by the gouty subject appears to be essentially cardiac. When fully developed it occupies the common situations of the pain in structural disease of the heart, particularly such as involves the aortic valves and the root of the aorta. It is referred to mid-sternum; or it is a "tearing sensation at the heart." In other instances it is not a pain proper, but a sense of oppression across the chest, or a sense of tightness, or of burning like heart-burn. In its full development it is anginal, and may then be accompanied by a variety of disturbances of associated parts as we have already described. Palpitation occurs in different forms and at different times in the subjects of gouty heart. It may accompany pain and oppression. It may be the sole complaint, in the form of fluttering or of irregularity and intermission, of which the patient is conscious and afraid. Palpitation in these subjects may be readily induced by indigestion, and as readily relieved by eructation. In other instances of the gouty heart it is entirely absent. Faintness may be of different degrees, from simple "giddiness" to complete syncope. The latter is associated, in my experience, with severe pain. What the patient calls "giddiness" is found associated with "nervousness," depression, anxiety, and a sense of impending bodily harm. Respiratory disturbance and distress are prominent features of some of the acute attacks. In other instances the breathing is entirely unaffected. Obviously, there is sufficient variety in the concomitant conditions to account for such differences.

In a patient complaining of symptoms such as those which we have reviewed, one naturally turns to the physical examination of the heart with some expectation of finding evidences of valvular lesion. The results prove, however, to be mainly negative : feeble impulse to eye and to hand ; ill-defined limits of præcordial dulness ; poor, feeble, thick, dull or indefinite sounds, and no murmur. The result is peculiarly disappointing. One has started on a promising examination, and finds but little that is determinate. Naturally one feels uncertain and unsatisfied. For myself I have come to regard this indeterminateness of the results of physical examination as a characteristic of the gouty heart. If I am right, then these ill-defined, negative signs deserve more careful consideration as a whole, and more precise individual description. Let us see.

The pulse, which might be expected to be of service in the diagnosis of gouty heart, varies much. It is of ordinary frequency, or abnormally frequent or infrequent. Often it is irregular, sometimes intermittent. Quite often it is peculiarly indefinite or indeterminate, like the præcordial signs. The tension, as I have said, is rarely what one would expect—high ; but, on the contrary, either moderate or actually low. In some instances the wall of the vessel proves to be thickened.

The gouty heart occurs quite independently of degeneration ; and the evidences of it may occur at intervals, as I have already incidentally told you, for a period of forty years. In these instances, and in all others, the diagnostic test that has to be judiciously, I might say judicially, applied is a history of gout—particularly in its irregular forms, and a bodily and mental constitution the characters of which I need not recapitulate. Two other circumstances will help us materially in our diagnosis—namely, first, the success of treatment directed against gout and the failure of other methods ; secondly, the happy disappointment of an unfavourable prognosis that we may at first have been led to give.

Under the head of prognosis three questions present themselves ; and they are questions that we must be prepared to have put to us. The first of these is—Will the patient die ? Little wonder that the worst is feared, when angina or faintness is seizing on the sufferer at short intervals, and deathly feelings form part of the attacks. My experience is that these patients do not die. I have known and watched many of them for years, and I am not aware that the event has been fatal in any of these instances.

Secondly, Does the gouty heart pass into the structural disease of the heart associated with contracted kidney ? I have already said that we often have great difficulty in drawing the line between these two morbid states of the heart, and therefore

I cannot deny that cases regarded for a time as simple gouty heart do occasionally proceed to chronic Bright's disease. But the typical case does not do so.

The third question in prognosis is—What is the prospect of relief? This depends chiefly on recognition of the true nature of the affection that you are dealing with, and on the treatment founded on it. Proper treatment affords relief. We are thus brought to the treatment of the gouty heart. One of the very first ends to be secured is the re-establishment of confidence. Reassurance often works very powerfully for good on the subject of gouty angina. He “takes heart again” when he is told that he may leave his nitro-glycerine tabloids or his nitrite of amyl capsules at home, and go to walk without them. At the same time it would be foolish and unreasonable to make light of work and worry in this affection. It is always wrong to tax and try an irritable heart. For a time, at least, gentle exercise on the level only should be allowed: certainly no kind or degree of exertion that induces pain or oppression. In the larger number of cases this means that the patient give up his work for a time. When he does so it is not to remain idle indoors, but to avail himself as fully as possible of the influences of a healthy outdoor life in fresh air, following some pleasing occupation of a quiet kind. At the very first, most kinds of exercise, including all sports, will be forbidden; but presently, all going well, he will be allowed easy driving, golf, fly-fishing on small streams, or even gentle riding on horseback, and later still a little easy shooting. To those who do not engage in such amusements, walking may be recommended in interesting country parts or on the coast.

Some of the best results that I have seen from the treatment of gouty heart have been obtained from the use of recognised mineral waters. I have known one patient visit Homburg in great distress, year by year, after passing through alarming attacks of angina, pulmonary congestion, and great depression at home; and I have known him return as often, after six weeks, restored to health and eager for work. I confess baths and waters are a method of treatment that calls for the greatest care in the selection of them, and for even greater caution, if possible, in the use of them. Without judgment on the part of the doctor at home and the doctor abroad, such a patient, especially if over 50, may be very easily pulled to pieces. Some of our own baths, such as Leamington, Buxton, and Llandrindod, may yet prove useful in the gouty heart.

There can be but little doubt how the gouty patient ought to be dieted. First, his diet should be *sparse* in amount, and it should be of an ordinary mixed kind. I make it another rule of diet in these cases to order a fair amount of water to be drunk at each meal; and Vichy water is perhaps the best

beverage of all. In many instances a small definite quantity of stimulants, such as whisky or a pure red wine, has to be allowed at meal times, but all white wines and beer must be strictly forbidden. The question of smoking must never be forgotten. To ensure the best and speediest results, tobacco in every form is best avoided entirely. Some patients plead for one pipe a day; but I have known even the last pipe have to be given up.

If we wish to know what class of medicines does most good in gouty heart, we have but to ask the sufferer after an experience of a year or two. It is remarkable how many of these patients suggest blue pill, or tell you spontaneously that they have found it better than all the other remedies prescribed for them.

Next to purgatives, the drugs that give us most satisfaction are iodide of potassium, arsenic, strychnine, and digitalis with its allies. If pain be a prominent feature, iodide should be ordered in combination with alkalies; if faintness, strychnine, variously combined. Arsenic and strychnine make a valuable combination in some instances. The use of digitalis demands judgment. It will be well, as a rule, to order, say, five minims of tincture of digitalis to be taken with each dose of any of the preceding drugs or combinations that we may decide to give. In some of these patients strophanthus occasionally proves peculiarly suitable as a substitute for the older drug.

During the anginal seizures we naturally trust to the nitrites and nitro-glycerine, which are so powerful and so swift in their action. In more prolonged instances I would give a hypodermic injection, consisting of two minims of the Pharmacopœial injection of morphine and two minims of the Pharmacopœial solution of hydrochlorate of strychnine—that is $\frac{1}{3}$ th and $\frac{1}{30}$ th of a grain, respectively, of the two drugs. The effect of this combination on a disabled heart is often extremely satisfactory.

Whilst I recommend a single dose of morphine in the acute phase of the gouty heart, I would discountenance the use of sedatives—particularly hypnotics—for which the sufferer often craves or has actually acquired a habit.—*The Practitioner*, January, 1895, p. 18.

27.—ON SOME POINTS IN THE TREATMENT OF THE GRAVEST FORMS OF CARDIAC DILATATION.

By Sir DYCE DUCKWORTH, M.D., LL.D.

The clinical practice of a large general hospital furnishes, without cessation, many examples of cardiac disease in the later stages of their course. In a large majority of these cases the distressing symptoms are coincident with, and dependent on,

dilatation of the several cavities of the heart; and with this condition are associated more or less general anasarca, venous engorgement, tumidity of the liver, gastro-enteric catarrh, nausea, and the respiratory difficulties due to plural dropsy and pulmonary oedema. In the final stage there often comes, in addition, a free hæmoptysis, due to pulmonary apoplexy. In the antecedent history of many of these cases rheumatic endocarditis and pericarditis are found to have played the most active part. The incidence of these disastrous troubles is, as is well-ascertained, largely upon the female sex, and the number of young lives thus afflicted and cut short is a very sad fact to bear witness to in medical practice.

In the following remarks I desire to point out how such cases may be best relieved, and to note in particular the value of certain remedial measures.

The patients are often admitted almost *in extremis*—semi-collapsed, livid, panting, and well-nigh pulseless. They are too ill to be examined. A physiognomical diagnosis reveals to an experienced eye as much as is necessary to determine what must be done forthwith. If the heart be examined cursorily, it is found to be acting tumultuously, and no murmurs may be detectible, the two sounds closely resembling one another. In such a case, especially in a young female patient, one may almost certainly predicate the condition of mitral stenosis, with all the varied troubles which come out of such a mechanical obstacle. Rest, adjusted pillows, a warm bed, and warmth to the feet are the prime necessities; and often these measures prove helpful after some hours of quietude. Occasional draughts of Hoffman's anodyne are exceedingly useful. This remedy (Spir. Ætheris Co.) is too commonly employed in adequate doses. Forty to a hundred minims may be given in an ounce of camphor or peppermint-water, and repeated every three hours.

In some of these cases the question of venesection presents itself, and any undue lividity of surface or turgescence of jugular veins should suggest the propriety of bleeding from the arm. Not less than six, or more than ten, ounces of blood may sometimes be removed with distinct relief to many of the urgent symptoms. One may sometimes wait twelve hours before deciding on this course, to discover whether there is a tendency to subsidence of the more pressing difficulties.

If venesection is likely to prove difficult, great benefit may be secured by putting on six or ten leeches over the præcordia. Subsequent examination of such a patient will commonly reveal the presence of the several conditions I have already mentioned: anasarca, swollen liver, &c. The condition of the heart may now be determined, and the valvular lesion or lesions definitely

ascertained. Murmurs may develop as the tumultuous action subsides. Indications of dilatation, superadded to hypertrophy, are present, the chambers more particularly affected varying somewhat, according to the specific valvular lesions. Pericardial or pleuro-pericardial adhesions may add greatly to the gravity of such cases. Within a few days, in response to rest, careful dieting, a saline aperient (than which none is better than the *Mist. Sennæ Co.*, $\bar{3}j$ to $\bar{3}iiss$, with a drachm of tincture of jalap added to it), and occasional doses of citrate of ammonium and potassium, we may often find marked improvement. The next point to determine is the employment of digitalis, which may greatly aid in fortifying the condition of the cardiac muscle and in promoting the general arterial pressure. It is wisest to delay for a day or two the use of this drug, for it will thus often serve us better than if we proceed to give it during a cardiac storm.

There is a good indication for it in the rule of the old physicians, who resorted to it when the legs were dusky and bloated with a soft œdema. A feeble, irregular action of the heart, with a frequent, fluttering pulse, calls for the employment of digitalis. The diastole is prolonged, and the cardiac action becomes steady and regular under its influence. The only ill-effects known to me as induced by digitalis are nausea or vomiting, which sometimes occur. The so-called cumulative effects of the drug I have never witnessed. The tincture is the preparation most commonly used, and one seldom needs to exceed a dose of 10 or 12 minims, given three or four times in the day. Tincture of senega and ammonia may often be usefully combined with it. A free flow of urine and a general subsidence of dropsy not seldom occur under the action of digitalis. In many cases, not too far advanced in respect of cardiac muscular degeneration, the patient may be so much relieved as to resume some light occupation. In many more cases the respite is of short duration, and a trifling exposure, or conflict with the duties of life, with too often a miserable environment, reinduce all the distressing troubles, and bring back the unhappy subject to our care.

Similar measures may again succeed, more or less, but there is progressive failure of power and less response to approved remedies. In this condition we may sometimes secure benefit from the following measures: restriction of fluids taken (and this, indeed, may well be enjoined in all cases of cardiac dilatation with dropsy), the employment of mercury with digitalis and squill, given nightly in pill (2 grains of blue pill, and 1 each of powdered digitalis leaf and of squills), and the occasional application of two or three leeches to the epigastrium. Alcohol, in the form of brandy or gin, is useful, given in milk

or in water to the extent of two or three ounces in the twenty-four hours. Great relief is often secured by the use of the mercurial pill, maintained for some weeks. In particular, the hepatic engorgement is relieved; and with this, much of the nausea and gastric catarrh, which are constantly distressing, tend to disappear. Draughts of effervescing tartrate or citrate of sodium, with three or four minims of dilute hydrocyanic acid in each, are grateful and helpful.

Persistent dropsy not seldom requires relief from punctures on the outer side of the lower limbs, made with Southey's trocar, great cleanliness and antiseptic precautions being duly observed.

Dyspnoea and sleeplessness at night can be remarkably alleviated by hypodermic injections of morphia, and nothing contraindicates this measure. The dose need not exceed $\frac{1}{12}$ to $\frac{1}{8}$ of a grain. Paraldehyde may also prove of service.

The bowels are best relieved by compound jalap powder in 30 to 60-grain doses, given in a little milk early in the morning; and a grateful diuretic drink is available in fresh lemonade to which bitartrate of potassium is to be added in the proportion of one teaspoonful to the pint.

The dietary should be nutritious and readily digestible. Tender mutton, meat, fowl, and fish, finely minced, animal broths in small quantity, milk, yolk of egg, custard pudding, and well-cooked fruit may be employed. Cocoa is often better than tea, and coffee is useful. Toast and rusks are the best bread-stuffs; and the most suitable vegetable foods are potato, well-mashed, and spinach. When gastric catarrh is present, milk and lime-water, or cold meat essences, are the only available articles of diet for the time being. Koumiss has proved useful in checking incoercible vomiting.—*The Practitioner*, March, 1895, p. 193.

28.—ON CARDIAC ASTHENIA IN CHILDREN SUFFERING FROM INFECTIOUS DISEASES.

By Dr. SEVESTRE, Physician to the Trousseau Hospital.

Infectious diseases of the adynamic type are much less frequent in children than in adults, and in typhoid fever especially it is not uncommon to see the disease run its course in the child without having presented the symptoms which characterise it later in life. Nevertheless, even when there are not the usual signs of adynamia, cardiac asthenia frequently occurs. It may occur rapidly and unexpectedly, but in other

cases signs of cardiac weakness may have been foreseen. In the most severe form cardiac asthenia appears sometimes at the outset as syncope, which may cause sudden death; but at others, after having lasted a few seconds, it disappears, leaving the patient weak and collapsed. The pulse is rapid, irregular, compressible, or even imperceptible. The heart-beats are hurried, tumultuous, often irregular; in some cases stronger, more frequently weaker than the normal, the impulse almost or quite imperceptible. On auscultation the sounds are feeble and dull—embryocardiac condition of Huchard and Gillet; *i.e.*, the two sounds are indistinguishable either by their tone or by the unequal duration of the long and short silence, giving the impression as regards sound of the tremor of intermittent electrical apparatus. Sometimes this condition ends in death; more frequently the symptoms subside; but even though consciousness completely returns, there is little change in the pulse, which remains shabby, or in the heart-sounds, which are indistinct. A milder degree of the same symptoms is common, such as cold extremities, slight cyanosis, and modifications of the heart and pulse. These symptoms usually precede the functional troubles by several days, and they may be foreseen and sometimes averted by appropriate treatment. They may occur after a cold bath, and this fact often deters him from employing it in infantile typhoid, because these accidents are commoner in children than in adults. Therefore, while observation of the temperature is important, frequent examination of the heart is not less so, both from the diagnostic and therapeutic point of view. These remarks apply to other infectious diseases. Contrary to what one would expect, even in view of the heart disturbances caused by alterations in the pulmonary circulation, signs of cardiac asthenia are rarer in pneumonia, showing the importance of infection in their pathogenesis. The mechanism of the condition is complex. Alteration of the cardiac muscle plays an important rôle; but diminished arterial tension is another important factor, and it is only by keeping these two points in view that a rational and effectual treatment can be instituted. The cause of infection must be combated by internal antisepsis, encouraging elimination of toxines, prescribing cold baths, tonics, &c. Tonic treatment of the heart is specially important; for this the most useful drug is caffeine. Whenever in a child with infectious disease the pulse becomes soft and frequent, and the heart's actions feeble, caffeine is prescribed. It is also given before resorting to cold bathing, however satisfactory the pulse may be. Hypodermic injection is the best mode of administration, the following modification of Tauret's formula being used:— R *caffein.*, ʒss. ; *sodii benzoat.*, gr. xxxvi.; *aq. dest.* q.s. ad ʒijss. One cubic centimetre (M. xv.)

contains gr. iij of caffeine. The author injects as much as 3 grains of caffeine in children of five years and upwards, twice or thrice daily as required. The injections are best made deeply into the outer part of the thigh. ["Le Progrès Médical," December 22, 1894.]—*The Practitioner*, February, 1895, p. 171.

29.—THE TREATMENT OF NERVOUS DISTURBANCE OF THE HEART FROM INFLUENZA.

By ERNEST SANSON, M.D., F.R.C.P., Physician to the
London Hospital.

The signs and symptoms referred to the heart resulting from influenza in cases under my own observation were thus distributed :—In 100 cases—pain referred to the heart, 23 cases ; the rapid heart (tachycardia), 37 cases ; the irregular heart (arhythmia cordis), 25 cases ; the slow heart (bradycardia), 5 cases ; organic disease of the heart, 10 cases.

Organic disease of the heart as a direct result of influenza I believe to be very rare. The specific poison alarmingly reinforces pre-existing rheumatic disease. Endocarditis and pericarditis of rheumatic causation may rapidly increase if the subject of them become infected with influenza. In very rare cases a septic form of endocarditis has been initiated by the acute disease. Acute and subacute inflammations of the aorta, and probably of the pulmonary artery, have been induced in some cases. I have no evidence, however, that endocarditis (except of the ulcerative form) or myocarditis are produced by the toxic agencies of the disease.

In any case of severe heart-pain after influenza complete rest should be recommended in the early stages of treatment. A hypodermic injection of hydrochlorate of morphine (gr. $\frac{1}{4}$ to gr. $\frac{1}{3}$) may be administered at the situation of the maximum of the suffering, but the precaution should be taken of giving a diffusible stimulant by the mouth shortly before the injection. I suggest the following formula :—Spiritus ætheris \bar{z} ss ; spiritus ammoniæ co. \bar{z} ss ; tinct. sumbul \bar{z} ss ; aquæ camphoræ \bar{z} iss ; to be taken as a draught before the administration of morphia, and repeated an hour afterwards. Once the severity of the pain is thus mitigated, other agents than morphia should be employed. Quinine in 5-grain doses dissolved in hydrobromic acid, as before suggested, is often very effectual. If there be any periodicity about the attacks this dose should be administered about half an hour before the usual period of onset, and repeated at hourly

intervals during the painful phase until three or four doses have been taken. Smaller doses are ineffectual. The same precautions as to administration of stimulant antispasmodics should be taken with quinine as with opium, for quinine may depress the heart. After the administration of quinine in these doses for three or four days there should be a two or three days' interval. When, however, the severity of the pain is broken a 5-grain dose once every two or three days is found to be sufficient. For more continuous treatment at the early stages of the painful phase bromide of sodium in 20-grain doses with 3 minims of Fowler's solution, dissolved and sufficiently diluted, may be given with advantage three times a day after food. In some cases 5-grain doses of iodide of sodium are added with benefit. The bromide should not be given continuously for more than two or three weeks ; afterwards the alkaline carbonates with the small doses of arsenic may be substituted.

Local treatment in the more persistent forms of pain is valuable. Mustard poultices sprinkled with tinctures of opium, belladonna and aconite give relief in some cases. I have used in others a fomentation of lint soaked in a hot solution of salicylate of sodium with much advantage ; or an ointment containing 20 per cent. of salicylic acid and 10 per cent. of menthol, in a fatty basis of lanolin and lard, may be rubbed in by a flannel pad over the painful area. In the more chronic cases small oval blisters applied over the intercostal spaces have been efficient. I have also found the constant galvanic current (as from a Schall's 6-cell battery, the positive pole placed over the nape of the neck and the negative over the painful site, the applications being for ten minutes twice daily) completely remove the pain.

Abnormally rapid action of the heart may be the immediate sequel of an attack of influenza, or may be manifested some months after the initial attack. In some of these cases palpitations are severe, and the heart's action is made still more rapid by muscular movements or slight causes of disturbance. In very many, however, the abnormally rapid contractions of the heart, habitually over 100 per minute, are quite unperceived by the patient.

In the treatment of these cases I believe digitalis and the analogous cardiac tonics to be not only useless but dangerous. The reasoning thus expressed : "The heart's action is rapid, digitalis slows the heart's action ; therefore give digitalis," is unsound and unsafe. The first indication in treatment is to allay all inordinate nervous perturbation. It is not necessary, save in exceptional cases, to insist on complete rest in bed, but all causes of undue excitement must be avoided. The mixture of sodium bromide with small doses of arsenic, as suggested for the treatment of pain at the heart, is perhaps the most generally

useful. During the periods of dyspepsia the alkaline bicarbonates, with bismuth and small doses of dilute hydrocyanic acid, seem to be the best therapeutic means.

For the treatment of the insomnia, I think the most useful and least harmful agent is chloralamid in 20-grain or 25-grain doses, administered at bedtime. If this be inefficient, like doses of sulphonal may be given. Opium should be avoided, or, at any rate, reserved for emergencies.

It is to be remembered that an abnormal frequency of the cardiac contractions may be continued in a given subject for many years. We feel that such a patient is unstable, though there may be no other notable deviation from health. Treatment by drugs often fails to reduce the rate of pulsations. I have observed a sufficient number of cases to convince me that in the continuous galvanic current we have a valuable method of treatment for these cases. The current from a Schall's four or six cell battery is sufficient. One pole, the anode, moistened with warm water or salt-and-water, is held over the nape of the neck, and the other, the kathode, is gently pressed into the groove in the neck outside the larynx. The current is allowed to pass for six minutes three times a day, the applications of the kathode being to the right and left sides of the neck alternately. In many cases the effect is quite imperceptible, but in some, even with these weak currents, there are effects upon taste and upon vision (flashes of light, etc.) ; and often there are prickings of the skin. The rate of the heart's pulsations is reduced, though it must be remembered that satisfactory results are very slow in appearing. There is seldom much improvement in less than six months. Patience is necessary ; but I have seen the best results follow this plan of treatment.

The irregular heart after influenza has associations very similar to those of the rapid heart. The irregularity may be extreme, and yet unperceived by the patient. It is most important that attention be not drawn to it, for, once observed as a subjective sensation, the formerly almost harmless phenomenon becomes a lasting misery. There are with the irregular heart associations with the signs of Graves's disease, with vagus storms and with multiple neuritis, as with the rapid heart. The most important differences are that the condition of irregularity of the heart's action is much more frequently attended with præcordial pain and cardiac discomfort, that it is more apt to be evidenced in persons of advanced age and of gouty tendencies, and that it not infrequently co-exists with disturbances of the faculty of hearing. The lines of treatment are chiefly those recommended for pain at the heart and for tachycardia.

Abnormal retardation of the rate of the heart's contractions (bradycardia) may also follow an attack of influenza, and that

immediately or after the lapse of several months. The slowing of the heart may be paroxysmal or persistent. I have observed a case in which a pulse habitually of 72 per minute was reduced to 48 during periods of severe epigastric and abdominal pain, recurring every afternoon for three or four hours for the space of a week. After the pain had disappeared the pulse rose to a rate of about 90. Treatment by a phenacetin and camphor, with local warmth and counter-irritation of the epigastrium and abdomen, is successful. Aperients and so-called appeals to the liver are seldom called for. If there be constipation, a dose of castor oil or an olive-oil enema is to be recommended.

The only drug which causes any increase in the heart-rate in such cases, according to my experience, is belladonna. The tincture may be given in 10-minim doses three times a day, or the extract in half-grain doses. The administration should be suspended for one or two days at the end of each week. Massage and graduated muscular exercises are useful; but it must be realised that the condition of very slow heart is one of peril.—*The Practitioner*, April, 1895, p. 305.

30.—SUDDEN DEATH BY THE RUPTURE OF THORACIC ANEURISMS PREVIOUSLY UNRECOGNISED.

By F. W. DRAPER, M.D., Medico-Legal Pathologist, Boston
City Hospital.

I have selected from notes of autopsies a series of cases of thoracic aneurism. These cases are all instances of sudden death. Their subjects have this in common, that the disease of the aorta which ended life so suddenly had not been suspected or recognised or been made the occasion of medical observation or treatment. In this respect they illustrate a rule about which all writers are agreed, that a large number of aneurisms declare no sign of their existence, and that they are revealed by the post-mortem examination only. They show how imperceptible, and with how little injury to health, may be the growth of even a large aneurismal tumour. Finally, they are examples of the usefulness of autopsies in determining accurately the causes of tragically sudden death, and in taking the obscurity out of cases which are too often dismissed with a convenient expression like "heart disease" or the more objectionable but equally convenient phrase, "heart failure."

Case 1.—Josephine S., aged 37, a hard-working charwoman, entirely free from disabling disease, though a moderate user of alcoholic drinks, was found dead, lying in a natural attitude on the outside of her bed, with her outer clothing removed. She was last seen alive twenty-three hours previously. Her body when discovered was cold, and rigor mortis was fully developed. Her acquaintances supposed her to be a healthy woman.

Autopsy.—When the sternum was lifted the left pleural cavity was found filled to its fullest capacity with yellow serum and dark-red, firm blood-clot, the whole mass measuring two quarts. This blood had escaped from a rupture in the inferior wall of an aneurism of the aortic arch. The aneurismal tumour projected posteriorly opposite the fourth, fifth, and sixth dorsal vertebræ, and had eroded the vertebral bodies and intervertebral cartilages in this region to the depth of a quarter of an inch at the deepest, leaving the general surface roughened and irregular. The aneurismal sac was ovoid in shape, and measured four inches long, three inches wide, and one inch and a half thick. Within it were masses of firm coagulum, with dry, shreddy layers of fibrin. The rupture was at the lowest part of the sac. The opening was valvular, from above downward. Externally it appeared as a rent in the aneurismal wall just below the root of the left lung, the lesion being irregularly crescentic, with the concavity downward, and with an opening at its uppermost part admitting a large probe. The heart was normal. The left lung was compressed, dry, and pale; the right lung was of normal volume, and moderately reddened. The other organs showed nothing noteworthy.

Case 2.—John J., aged 43, intemperate and shiftless, had not been heard to complain of any ailment until the morning of the day of his death. At this time he procured from a druggist a “plaster for his chest.” About three hours later he was seen on the street, looking so distressed that an acquaintance remarked upon his appearance, and J. replied, “*I am sick.*” Presently he went into a store and sat down; he quickly became stiffened in a convulsion, was rigid and unconscious, breathed stertorously, gasped a few times and died, the whole transaction occupying but a few minutes. *Autopsy.*—The heart was healthy and empty. The lungs were normal, though rather anæmic. In the abdominal cavity were sixty-six fluid-ounces of mingled fluid-blood and blood-clot. The source and course of this hemorrhage were found to be as follows:—At the junction of the transverse and descending portions of the aortic arch there was a projecting aneurism, with thin walls, the tumour being the size of an English walnut. This outgrowing sac had ruptured at its outer part, and the escaping blood had dissected its way inside the sheath of the aorta, leaving a blood-stained

track in the posterior mediastinum. It had then torn through the diaphragm between the aorta and the œsophagus. It had then turned to the right, across the cardiac end of the stomach posteriorly, and here, tearing away the peritoneum of the stomach over a surface two inches by three inches, it had broken through and discharged into the general peritoneal cavity. All the organs of the abdomen were structurally healthy. The brain was pale and wet.

Case 3.—Winifred M., aged 65, a homeless wanderer, depending on street alms and the poor hospitality of her acquaintances to keep her from starvation, was not known to be the subject of any disease, although she had been heard once to make an allusion to her “heart” as the seat of some indefinite disorder. On the day before her death she was on the street from morning till night, and returned to her temporary lodging in her usual health. Her bed was prepared for her on the floor, and she went to sleep at 10 o’clock. In the night she shifted her bed from the corner of the room to the middle ; and here at 7 a.m. she was found dead without any indication of distress in her attitude or countenance. *Autopsy.*—When the sternum was removed, the pericardium was observed to be distended, bulging outward, and freely exposed ; it contained ten fluid-ounces of blood, fluid and clotted. The heart was moderately and symmetrically enlarged ; its muscle was readily crushed by finger pressure. The aortic valves were moderately thickened at their free border, but were competent. The mitral valve was normal. The aorta, beginning at a point near its origin, was dilated ; the enlargement was rather greater on the upper, or convex border, was fusiform in shape, without sacculation, and in size and contour resembled a lemon. The wall of the dilated artery was thinned to an appreciable degree ; and the intima, not only of the arch, but of the entire thoracic portion as well, showed large patches of atheroma, some of them with calcareous plates. Immediately to the right of the innominate artery, on the upper curve of the transverse part of the arch, there was a rent in the intima of the aortic wall, transverse in direction, and one inch long ; the edges of the rupture were irregularly indented, but the general direction was linear and straight. The situation of this internal rent was above the line of the pericardial attachment. But the blood, instead of forcing its way directly out at this point, had dissected a passage backwards and downwards, along beneath the outer coat of the artery, and had found its entrance into the pericardial enclosure, through a longitudinal rent an inch and a half long, and two inches below its rent of exit through the inner coat of the aorta. The tissues between the two ruptures were infiltrated with blood. Both pleural cavities were obliterated

by old pleuritic adhesions. Both lungs were engorged. There was no blood in the bronchi. There was no sign of disease about the abdominal or pelvic organs. The brain was normal in appearance.

Case 4.—Joseph F., aged 75, was alive and well at 6.30 a.m., when his room-mate left him at home. He had been out of doors through the previous day, and was not known to have any ailment. At 1 p.m. he was found dead on the floor of his bedroom. He was in a kneeling posture, with his forehead resting on the floor in front of him. His trousers were down about his thighs. *Autopsy.*—The pericardium was distended and bulging, showing a dull purple colour through its wall. It contained twelve and a half fluid-ounces of blood, fluid and clotted, the clot being soft and of a dark colour. The heart was normal in appearance; its valves were all competent and in healthy condition. The aorta was dilated; its intima was thickened and roughened from the semilunar valves to the iliac bifurcation, the result of atheromatous degeneration. Just above the anterior coronary orifice, in the ascending portion of the aortic arch, there was an aneurismal sac projecting outward and to the right, and having a cavity of about the size and shape of a large olive. At the outer aspect of this small sac was a crescentic, valve-like rent, extending downward into the pericardium. The external lesion in the outer coat of the vessel was curvilinear, three-quarters of an inch long. The orifice through which the blood escaped through the intima was irregularly rounded and about the size of a pea.

Case 5.—Leodegar M. L., aged 51, was found dead in his room in a hotel, lying back against some pillows on a lounge, one foot on the lounge and the other hanging off its edge. An hour and a half previously he had walked up the three flights of stairs leading to his room, and seemed in his usual good health and spirits when he entered the hotel office. He was the subject of a lateral curvature of the spine, and to his acquaintances this appeared to be his only disability. It was ascertained from one of his intimate friends, however, that for many months he had had pain in his shoulders and in the right sub-clavicular region to such a degree that he had talked of sudden death as a possible termination of his trouble. The last evening of his life he had seen a well-known and experienced physician who gave him some advice of a general nature, but did not entertain the idea of any serious organic disease. *Autopsy.*—When the sternum was removed the pericardium was observed to be prominent, distended, and elastic, showing dark contents through its translucent wall. It contained sixteen fluid-ounces of blood, fluid and clotted. The source of this hemorrhage was found to be a minute rupture in the wall of an aneurism of the

ascending and transverse portions of the aortic arch. This portion of the artery was enlarged to about twice its normal size; its intima was rough and thick. From the outer and upper part of the ascending section a secondary projection was found, the result probably of a former rupture of the aortic wall. The wall of this smaller sac was relatively thin, and was lined with loose, rather dry clot. At its upper border, as close as possible to the pericardial line, was a minute orifice, hardly admitting the head of a small probe. The size of the sac was that of a large apricot. The heart was firmly contracted and empty; its structure was normal. There was no effusion of blood outside the pericardium.

Case 6.—John H. H., aged 51, ran to catch a train which was about to start. He entered a car and took his seat. Presently he was observed to be ejecting blood copiously from his mouth; his death quickly followed. It was learned from his kindred that he had been ailing many months with some obscure symptoms which represented “heart disease” to him; but he had not been incapacitated for the performance of his daily duties. He himself had anticipated sudden death. *Autopsy.*—On raising the left lung, a firm adhesion was found posteriorly, near the apex, tying the lung to the spinal column and the adjacent ribs, over a surface two inches in diameter. When the heart, lungs, œsophagus, and aorta were removed together, this area of adhesion was found to be a portion of the wall of an aneurism of the thoracic aorta, involving the lower section of the descending portion of the arch as well. The aneurism consisted almost wholly of the dilated arterial walls, much thinned; there was no deposit of fibrinous layers within it. The lining surface was rough from atheroma, with projecting calcareous plates. The part next to the spine, where the adhesion was found, had eroded the bodies of the vertebræ to a slight extent. Just in front of this eroded space, the aneurism had ruptured in a forward and upward direction into the upper lobe of the left lung. At the point of rupture the wall was thinner than elsewhere. The rent was irregular and somewhat stellate in shape, and admitted the tip of the finger. The size of the aneurismal cavity was about that of an orange. The entire arch of the aorta was considerably dilated, and its intima was roughened and thickened. The aorta below the aneurism also showed atheromatous changes, without dilatation. The heart showed no change whatever from the normal condition, in size, thickness of its walls, colour of its muscle, or state of its valves. Its cavities were empty, and its left ventricle was contracted. The left lung at the point opposite the aneurismal rupture showed an excavation half an inch deep and of irregular periphery; all around this the tissues

were infiltrated with blood, giving an engorged appearance to the entire upper lobe, and, to some extent, the upper part of the lower lobe also. There was no blood in either pleural cavity. The right lung was somewhat reddened. The trachea and bronchi contained blood, and there were about four fluid-ounces of clotted blood in the stomach. The other organs showed nothing noteworthy.

Case 7.—An unknown woman about 60 years old, presenting the aspect of a homeless street-beggar, was seen to stagger across Atlantic Avenue and to drop helplessly upon some store steps. She was bleeding from the mouth. She was insensible when the bystanders reached her, and presently she died. The front of her dress was blood-stained, but the evidences of very profuse hemorrhage were wanting. The body was not identified, and therefore all knowledge of her health previous to her attack on the street is lacking. *Autopsy.*—The following appearances were the only ones of immediate interest: The upper portion of the thoracic aorta, just below the arch, presented an aneurismal dilatation of the size of a large orange; it was located opposite the bifurcation of the bronchi. Portions of the wall were very thin, while other parts were much reinforced by layers of fibrin. The aneurism had ruptured into the bronchi. There was no blood in the pleural cavities. The lungs were engorged, and the bronchi and trachea contained frothy blood. The heart was enlarged, the hypertrophy being chiefly on the left side. The aortic valves were thickened, and behind them were small calcareous plates of great density. The aorta was dilated just above the valves, and at one point in the ascending portion the walls had yielded, forming a depression one inch in diameter and a quarter of an inch deep. The intima of the aorta throughout its extent was thick and rough.

Case 8.—Michael F., aged 77, was seen to topple over as he was in the act of crossing Park Square at 10 o'clock a.m. Medical attendance was immediate, and the man was placed in an ambulance and transferred quickly to the City Hospital. On his arrival he was in a state of profound collapse. He gave his name and address, but no other facts. He died at 10.45 a.m., three-quarters of an hour after the seizure. His family stated later that they had had no knowledge of any disability of which he was the subject. *Autopsy.*—The pericardium, prominent and bulging when first exposed, was found to contain a pint and a half of fluid blood and soft clots. The heart was moderately enlarged, and its left ventricle showed a thickened wall; its valves were normal. The arch of the aorta was much dilated, its lumen being expanded into a cavity of the size of a large lemon. In the descending portion of the arch, just

behind the pulmonary artery, there was a transverse rent in the intima, two and a half inches long, linear, straight, but not penetrating into the pericardium ; the most careful exploration failed to discover any communicating opening, and the conclusion was that the leakage seemed to be by filtration through the outer layer of the aorta's wall. The inner coat of the aorta was thick and rough, and the lumen of the artery below the arch was narrow and irregular. The tissues in the posterior mediastinum and in the posterior parts of both lungs were fully infiltrated with blood ; the lungs elsewhere were œdematous. About a pint of thin, bloody serum was found in the pleural cavities.

Case 9.—Chipman, H. S., aged 37, was admitted to the City Hospital about 10 o'clock p.m., January 20, at the request of a physician who stated that the man was suffering from paraplegia, in some way connected with two doses of a poisonous drug prescribed by an irregular practitioner. It appeared from S.'s story that he had not suffered any disability until the forenoon of that day ; at this time his legs "gave out" and he sank to the floor of his room. He said he had great pain in his back, not localized, but general. There was also an account of vomiting and of the passage of bloody matter in his dejections, and this lent some aid to the theory of poisoning. At the hospital a loud souffle was heard over the heart. The man was restless, very thirsty, and disinclined to talk. Toward morning, January 21, he sank into a stupor and had some equivocal convulsive movements. He gradually failed, and died at 12.5 p.m., that day. The hospital diagnosis was not convulsive, but cerebral hemorrhage seemed the probable condition.

Autopsy.—The heart was hypertrophied without dilatation. Its valves were all in normal condition. The myocardium was pale but firm. The aortic arch was dilated moderately and displayed old endarteritis. The aorta below the arch and to within five inches of the diaphragm was normal. At this point, just above the diaphragm, there was an aneurism of the size and shape of a large kidney. Its anterior wall was adherent to the posterior surface of the lower lobe of the left lung. Its posterior wall was the exposed and eroded bodies of the eighth, ninth and tenth dorsal vertebræ ; the necrosis of these bones had gone so far as to leave upon the front and left side deep excavations into which the forefinger could easily be laid, leaving a thin shell of denser bone at the upper and lower margins, with the intervening cartilages in place. Around this bony destruction the aneurism was firmly attached to the bone at either side. The contents of the sac consisted of laminated and rather dry, easily broken blood-clots, brownish-red in colour, through which ran a tortuous blood canal of the size of

the finger. The spinal cord was taken out from behind. The vessels of the dura were injected throughout the dorsal region. The body of the tenth dorsal vertebra, in front of the dura, was carious and dark-red. The ninth vertebra showed less change. There was a marked excess in the spinal fluid, fully distending the cavity of the dura. The vessels of the pia were fully injected, especially along the anterior surface of the cord. In the anterior and left lateral columns of the cord, near the affected vertebra, there was a marked degree of reddening, in contrast with the colour above and below; but the consistence of the cord was normally firm.

Case 10.—Patrick J. S., aged 30, a tailor by trade, had been ailing many months with an obscure pain in his right side; and, also, at times, with what he had called “neuralgia of the heart.” He had received medical treatment for “liver complaint.” He had kept at his work, without interruption, up to the hour of his death. The first symptoms of his approaching end were pallor and great dyspnœa. He entered a liquor store where he was known, and sat down “panting for breath.” A carriage was called, and the man was placed in it and started for the City Hospital. He died on the way. *Autopsy.*—The body was lean. There was rather more than the usual degree of cadaveric lividity. The left pleural cavity contained ten fluid-ounces of thin, red fluid. Both lungs were, in general, gray in colour, and were thoroughly œdematous and sodden. The right lower lobe and left upper lobe were injected more than other parts; but the reddening was very moderate in degree. The pericardium contained five fluid-ounces of straw-colored serum. Both ventricles were firmly contracted; their walls were not thickened. The several valves were normal. An aneurism projected from the anterior wall of the aorta, immediately above the semilunar valves. Its size was that of a small orange. Its wall was translucent at its most projecting part; elsewhere it was lined with friable coagula, or masses of fibrin, and was opaque and thickened. The orifice of entrance to the sac, seen from within the aorta, was one inch above the right semilunar valve, and appeared as a round aperture through the wall of the vessel; the opening admitted the tip of the forefinger. The aneurism was so located that it overlay and nearly obliterated the lumen of the pulmonary artery just above its origin at the heart. The aortic arch was moderately dilated, and its intima was thick and uneven.

In addition to the features which the foregoing cases have in common (the suddenness of their termination and the fact that the development of serious aortic disease had never been discovered or treated), these deaths suggest some points of special interest, among which the following may be deemed

worthy of mention :—(1) The rupture of an aneurism of the aorta, although it sometimes has physical exertion as its exciting cause (Cases 5 and 6), does not of necessity require such a cause (Cases 1, 3, 8). (2) The pericardium, more often than other cavities, receives the escaping blood ; and, in these cases, it is not the amount of the hemorrhage which kills, but the inhibition of the heart's action, by compression of the cardiac walls, in a sac filled to distension with blood (Cases 3, 4, 5 and 8). (3) Deaths by aneurismal rupture, although deserving the description "sudden" are not instantaneous ; an appreciable interval (Case 6), and, sometimes, a very considerable period, elapses between the attack and its termination (Cases 7 and 8). (4) A death by aneurismal rupture is not generally a painful one (Cases 1, 3) ; although it may leave evidences that it is so in some cases (Cases 4 and 5). (5) The escaping blood in an aneurismal rupture does not always follow the line of least resistance (Case 2) ; and, sometimes, it makes a devious dissection to reach an outlet (Cases 3, 4). (6) Its small size and fusiform shape do not give an aneurism immunity from sudden rupture (Cases 2, 3, 4, 8). (7) An aortic aneurism is not necessarily an affair of advanced life (Cases 1, 2, 5 and 6).—*Boston Medical and Surgical Journal*, March 14, 1895, p. 245.

DISEASES OF THE ORGANS OF RESPIRATION.

31.—REMARKS ON THE CLIMATIC TREATMENT OF PHTHISIS.

By C. THEODORE WILLIAMS, M.D., F.R.C.P., Consulting Physician
to the Hospital for Consumption and Diseases of the Chest,
Brompton.

[The following excerpt is taken from an address on the Modern Treatment of Phthisis :]

In this country, though there is a great deal of talk about the virtue of fresh air, and boasting of going out in all weathers, in the case of invalids the doctrine of MacCormack and Henry Bennet is not carried out as thoroughly as it ought to be. A leaf might with advantage be taken out of the book of some of our Continental friends, and fearlessly trust phthisical patients to a little more open-air life than is at present done. Undoubtedly the treacherous climate of the British Isles, especially in winter and spring, is the great excuse. At most English health stations

a wet or snowy day means confinement to the house, and generally to the fireside, for the whole twenty-four hours, the usual plea being the great tendency of phthisical patients to catch cold and contract fresh catarrh. When what goes on at Davos, St. Moritz, and Falkenstein is taken into consideration, the probability of catching cold, if ordinary precautions are taken, is very doubtful. At Davos and St. Moritz phthisical patients almost invariably sleep with open windows throughout the winter, when the thermometer not uncommonly registers— 4° F., or 36° below freezing point, care of course being taken to heat the rooms with stoves, to provide plenty of blankets and coverlets, and to see that the current of external air is not directed on to the patient, but always first ascends to the ceiling. The universal testimony of medical men is to the effect that no harm, and much good, results from this practice. One effect is that patients accustom themselves to live at a lower temperature without noticing it. I remember a talented literary friend of mine who used to sit, sleep, and compose at Davos in a house of which the temperature did not exceed 40° , whilst his healthy, but unhappy guest was sitting shivering at his side. A female patient at Davos in winter astonished me by undressing with the window open, snow lying deep on the ground at the time. I shut the window, which, I was informed, had been open for six weeks and without harm. But it is to the practice carried on by day at the sanatoria at Davos, Leysin, and Falkenstein that I would specially draw attention. At each of these places there are covered terraces or long sheltered corridors open on one side to the air and protected from wind, where a large number of phthisical patients in various stages of disease recline on couches for the greater part of the day in all weathers. These galleries are deep and lofty, sheltered from too much sun, and from rain and snow by curtains. The patients lie on well-cushioned basket work or bamboo couches, like the Japanese ones used at the Hospital for Consumption and Diseases of the Chest, Brompton, for from seven to ten hours daily, only leaving them for meals or exercise. In the winter there is no heating apparatus, and warmth is kept up by fur clothing and abundant covering. At Falkenstein, on the slopes of the Taunus, about 460 feet above sea-level, this seems to be sufficient, and during a recent visit Dr. Hess, Dr. Dettweiler's assistant, informed me that hot bottles were rarely called for, but at Davos, where the temperature falls to 15° below freezing point in the shade, they are frequently needed. The galleries generally face south and are at Falkenstein, from their horseshoe distribution, complete suntraps on bright days, and here the invalids recline in all weathers, for they are not allowed to sit up, it being found more difficult to keep them warm in the sitting than in the

recumbent position. Several of them told me that they felt the cold at first but soon got accustomed to it, and what they did dread were the white mists which prevail in autumn. Besides these terraces at Falkenstein there are a number of pavilions in the park-like gardens, some holding two or four invalids, which rotate so as always to ensure protection from wind and rain. The patients seem quite at their ease and may be seen reading, writing, knitting, playing cards and games all day. They can keep warm even at Davos, as I can testify having visited Dr. Turban's sanatorium on a hard frosty day in January, 1892, and purposely shaken hands with a number of invalids as they lay on their couches after sunset reading their books by lamplight. Their circulation seemed to be excellent. In these sanatoria this treatment is by no means confined to incipient cases or to those with limited lesions, but is ordered even to patients in a condition of great prostration and to well-marked pyrexial cases. Dettweiler holds that the open-air treatment is the best method of treating the pyrexia of phthisis and his plan is as follows :— After keeping a case of this kind in bed for a week, under diaphoretics and antipyretics, with cold water applications and dry rubbings, if the pyrexia does not abate the patient is placed under the open-air treatment, and this has the effect of gradually reducing the fever and improving the appetite and strength. The open-air treatment has been largely in vogue in Germany since the Franco-German war, when the treatment of fever and of surgical cases in tents and in more or less open sheds was found to be so satisfactory, and most of the new German and Swiss hospitals have covered balconies or galleries adjoining the wards, where the patients can be wheeled, and where they can lie in the open air for most of the day. The same is done in some of our English hospitals if, as at St. Thomas's Hospital, the construction admits of it.

The advantages of this treatment for those suffering from phthisis are obvious, as it means the complete application of the finest antiseptic in the world—fresh air—to the lungs and systems for most of the day ; but the objections are two-fold. The incumbent position is not the best for expectoration, and where there are cavities and the power to expectorate is feeble there is some risk of fresh lung infection and the promotion of secondary cavities. This is met by adopting a position in which the head and shoulders are more or less raised, as is possible with most of the bamboo couches. Again, there are the want of exercise and the tendency to chilliness which such a practice involves. This is a point on which I differ from our German *confrères*, for, while they dwell on the importance of air, they do not attach sufficient importance to exercise, even in the initial lesions of phthisis. For the cases of consolidation or of excavation

with pyrexia exercise is undesirable and a continuously recumbent position the best, but in cases of limited apical lesions and limited cavities without fever it is desirable for the patient to take as much exercise as his strength will permit in order to develop and extend the healthy portions of the lung and to increase the muscular power. This, however, need not prevent the patient from spending the resting times of the day in the recumbent position in the open air. Then the difficulty of carrying out this practice in London and Birmingham and other great cities is considerable on account of the smoke, and, in winter and autumn, of the fogs ; but there is no reason why it should not be tried more fully at our health resorts, like Ventnor and Bournemouth, Torquay and Hastings. The south coast sanatoria of England should, as Dr. Hermann Weber suggests, have covered terraces or balconies in which patients might lie on couches ; and in the numerous villa gardens of Bournemouth and Torquay convenient rotatory shelters, capable of being turned at will to keep out wind or rain, might be erected and the verandahs be more utilised.—*The Lancet*, November 3, 1894, p. 1023.

32.—FOREIGN BODIES IN THE AIR AND FOOD PASSAGES, AND THE PRINCIPLES OF THEIR REMOVAL.

By FELIX SEMON, M.D., F.R.C.P.,
Physician for Diseases of the Throat to St. Thomas's Hospital, &c.,
President of the Laryngological Society of London.

As the practical outcome of my experience in this class of cases, in the large majority of the patients who have consulted me for impaction of foreign bodies in the upper air and food passages the foreign body at the time of the consultation was no longer there, and that it was only a persistent after-sensation which induced the sufferers to believe that it was still actually present. The remaining sensations of soreness, pain, pricking, or of the actual presence of the foreign body in this class of cases, apparently last much longer than after impaction of foreign bodies in other sensitive parts—such as, *e.g.*, in the eye—and it is most desirable for the practitioner to know that, in spite of the most positive statements, even of educated persons, to the effect that they were quite sure the foreign body itself was still present, it may long have passed down, leaving only most vivid and persistent after-sensations behind.

Now, as to the examinations of the parts under such circumstances, I wish to urge as a general principle that it should under all circumstances be begun by inspection with a good light, and not by the introduction of the finger or of an instrument into the throat. Palpation, though it may become, and often enough is, indispensable when inspection has failed, labours under the great disadvantage that if one has to do with small pointed foreign bodies, particularly with fishbones, or with pins and needles, one may actually drive the still projecting small part quite into the tissues whilst making one's examination. For the same reason it will be desirable, if the employment of cocaine be necessary on account of great irritability of the structures, to apply the drug in the form of a spray, and not by means of a brush.

In inspecting the throat by means of a good light the examination should be made very methodically, and should not be limited to the one part of the throat in which, according to the patient's belief, the foreign body is supposed to be still impacted. I have recently on another occasion insisted on the fact that the power of localisation of sensations felt in the throat is very defective, and that the sensations in the most different parts of the organs of the neck are, as a rule, jointly referred to a region in which, so to say, the joint sphere of sensations in the throat is situated. This region is the front part of the neck, the laryngo-tracheal region (Gottstein).

Particular care should be taken when the foreign body is stated to be a fishbone; when deeply impacted in the tissues, so that only a small part projects, it is sometimes extremely difficult to discover it, the more so as strings of tenacious saliva, which extend from one part of the throat to the other, often closely simulate it. In such cases examination with the probe, under the guidance of good light, and, if necessary, of the laryngoscope, ought to establish the actual existence of the supposed body in the tissues before an attempt is made at introducing forceps or other instruments for removal. Also, in the cases of foreign bodies supposed to be impacted further down, a laryngoscopic examination always ought to precede the introduction of bougies or other instruments for diagnosis by touch and for removal.

Coming now to the question of treatment, two principles, I feel convinced, ought to guide the practitioner in cases of impaction of foreign bodies in the upper air and food passages, viz.:—(1) No foreign body, the presence of which has been actually detected, ought to be allowed to remain impacted, even if at the time it does not produce any serious symptoms; and (2) no attempt should ever be made to ram an angular or pointed foreign body forcibly down.

With regard to the first of these two principles, I wish to observe that but too frequently foreign bodies, which shortly after their impaction cause slight symptoms or none at all, may later on be the source of most serious troubles.

Not less important is the second one, which I have ventured to emphasise in introducing this part of my paper. Self-evident as this principle ought to be, I find it is frequently sinned against. The danger of such proceedings is obvious enough; a fishbone or other bone, a pin, a needle, a toothplate, a broken shell, &c., might, by the adoption of this plan, not merely become more firmly impacted than it had previously been, and might offer, consequently much more difficulty to extraction; but may, particularly when it is small, be in its whole length driven into the tissues, and entirely disappear from view, or it might even perforate the part in which it has been first impacted, and set up most serious mischief in its neighbourhood.

As to the manner in which foreign bodies ought actually to be removed when impacted in the upper air passages, no dogmatic rules, it is needless to say, can be laid down, and the practitioner will have to be guided in each case by (1) the nature and size of the foreign body, and (2) the locality in which it has become lodged. In cases in which it is fixed in the nose, in the majority of instances it will, of course, be desirable to remove it through the anterior nares by slender forceps, and, if possible, under the guidance of inspection. The plan sometimes suggested, viz., to syringe forcibly some fluid through the opposite nostril, with a view of washing it away, cannot be recommended, on account of the danger which the forcible injection of fluids into a nostril entails for the ears, the fluid easily entering under such circumstances through the Eustachian tubes into the middle ears, and setting up acute otitis media. It will be desirable, previous to attempts at extraction, to apply a strong cocaine solution to the nostril in question, not merely with a view of diminishing the pain, but also of availing oneself of the deturgescent and ischæmising powers of that drug, whereby better inspection and easier removal will be rendered possible.

In cases of impaction of foreign bodies in the pharynx and naso-pharyngeal cavity again forceps with indented blades will in most instances be the most suitable instrument, the curve of the forceps being adapted to the locality of impaction.

When the foreign body has passed down into the larynx, or into the lower air passages, and when its form is round, such as in the case of coins, beans, peas, &c., previous to any instrumental interference it is always worth while to try inversion and forcible shaking of the patient; this plan may even be adopted when the foreign body is pointed or angular. Should the foreign

body be fixed in the larynx itself, and should its nature be such as to allow of the hope of removing it by intra-laryngeal operation without damaging the part, this plan of treatment will, of course, be preferable to an external incision. Should it, however, be either too large or too irregular to justify such attempts, and should it additionally cause dyspnœa, tracheotomy might first be performed, and an attempt be made to get hold of it through the tracheotomy wound, or to dislodge it from the larynx into the pharynx, where it can, of course, more easily be grasped; or thyrotomy may, if this should fail, be at once super-added to the tracheotomy, and the foreign body thus removed.

The same obtains of foreign bodies of large size and angular nature in the trachea.

With regard to the impaction of foreign bodies in the œsophagus, the instrument with which I have succeeded in dislodging the foreign body in most cases which have come under my notice is the parasol probang. In a few cases it was necessary to employ the coin catcher. Only when one is quite certain that a foreign body is of a rounded and soft nature, do I consider it justifiable to attempt to push it further down into the stomach. When it has already penetrated into the stomach the best plan is always to give the patient plenty of starchy food, such as porridge, lentils, potatoes, &c., in order to envelop it in the food pulp, and thus to facilitate its passage through the bowels.

I need only say that extraordinary cases may also demand extraordinary measures; that if, for instance, a large toothplate is firmly impacted in the upper part of the œsophagus and can by no internal operation be extracted, œsophagotomy may become necessary; that, if it has passed further down and remains in the stomach without being able to pass through the pylorus, gastrotomy may be required, &c.—*Owens College Medical Chronicle*, April, 1895, p. 1.

33.—RHEUMATISM OF THE LARYNX.

By G. HUNTER MACKENZIE, M.D.,

Surgeon for Diseases of the Throat and Nose to the Eye, Ear and Throat Infirmary, Edinburgh.

Rheumatism may be internal or external to the larynx, or both with corresponding modifications of symptoms. Fletcher Ingals, who has paid great attention to the subject, defines rheumatic laryngitis as a "painful affection of the vocal organ, attended by hoarseness and fatigue after talking, sometimes by

grave obstruction of the glottis." Of the more common forms (of which no mention is made in literature), he says: "For some years I have observed chronic painful affections of the larynx attended by no erosions or ulcerations, and by little congestion or swelling. They usually occur in persons of rheumatic diathesis; but often the larynx, or tissues about the hyoid bone, present the only evidence of the constitutional disease."

The symptoms dependent upon rheumatic disease within the larynx may thus be of a somewhat grave nature. Goris records a case of muscular rheumatism with swelling of the vocal cords and such intense "spasm of the glottis" as to necessitate tracheotomy. Vocal defects are, however, those most commonly met with, and are usually dependent upon immobility of a vocal cord, owing to affection of the muscles concerned in its movement. In such a case the laryngoscopic appearances may be entirely negative. If, however, the disease is arthritic, and the crico-arytenoid articulation is affected, there may be more or less swelling and tumefaction of the mucous membrane over the arytenoid cartilages. It is of importance to note that laryngeal hemorrhage may be of rheumatic origin.

Outside the larynx, rheumatism most frequently occurs as a muscular affection, and manifests itself by pain on pressure and on movement of the affected muscles. This variety may be coincident with the internal affection, and is more apt to be accompanied by rheumatic manifestations elsewhere, especially in the muscles of the neck and shoulders.

Immobility of a vocal cord with consequent huskiness seems to be one of the most common manifestations of rheumatism of the larynx. Thus, in one of the five cases recorded by Ingals there was paresis of the right vocal cord without swelling or redness, and in another there was bilateral paralysis of the lateral crico-arytenoid muscles (adductors) without congestion or swelling.

Simpson, of New York, has directed attention to what he designates "Acute Rheumatic Laryngitis of Gonorrhœal Origin." In one case he describes the right vocal cord as swollen and immobile.

There is thus sufficient evidence to show that the internal and external muscles of the larynx are subject to rheumatism; that the symptoms, though slight, and rarely grave, may be the source of much uneasiness to the patient; and that the resulting vocal defects may be of long continuance and sometimes permanent. Further, this local affection may exist without additional evidence of the constitutional presence of the disease, more especially when the internal muscles of the larynx are alone affected.

The treatment of such cases ought to be general rather than local. Small benefit follows the application of pigments and similar preparations to the affected parts, whereas a course of constitutional anti-rheumatic treatment will almost invariably remove the most of the disagreeable symptoms of which the patient complained. If, however, the crico-arytenoid articulation be affected, it is doubtful if the corresponding vocal cord will ever regain its normal range of movement, and hence the voice may be more or less permanently affected.—*Edinburgh Medical Journal*, December, 1894, p. 507.

34.—NODES OF THE VOCAL CORDS—SINGERS' NODES, TEACHERS' NODES.

By N. C. HARING, M.B. (Lond.), Assistant Physician, Manchester Hospital for Consumption and Diseases of Throat and Chest.

This apparently trivial affection is important, since when present, it almost invariably appears in those who are obliged by their calling to use their voices excessively. And by the hoarseness and voice fatigue which it causes, renders them unfit for their vocation. The patient complains of undue fatigue in speaking, and of loss of the singing voice, the high notes being lost first. It is noticeable that the volume is reduced, that the natural timbre is altered, and that there is a roughness or hoarseness in speaking. There is no actual pain unless catarrh is present. The symptoms are aggravated by catarrh of the larynx, to which the affection seems strongly to predispose. The symptoms come on insidiously, and the patient has almost invariably been suffering with "something wrong about the throat" before advice is sought.

On obtaining a view of the larynx, there will be seen usually on each vocal cord, just anterior to the middle portion, a localised thickening of the free edge and superior surface of the cord. These thickenings give the appearance of small sessile nodules incorporated with the substance of the vocal cord, and are exactly opposite each other. One node is usually larger than the one on the other cord. There is a zone of congestion around the node, varying from a narrow pink band to bright red congestion of one or both cords. The nodes cause distinct protuberances on the free edges of the cord, and can be seen to interfere with the due apposition of the cords on phonation. A dilated vessel running across the node, which has been stated to be pathognomonic of the affection, can usually be seen in the larger nodes, but, as far as my observations go, is usually not to be seen in the smaller ones.

Almost invariably there is a history of excessive use of the voice, the occupation of the patients being school teaching, singing, preaching, &c. In 20 cases that I noted, 15 occurred between the ages of 18 and 22. None were under 18, the oldest was 44. Sixteen out of the 20 patients were females.

Subjective symptoms are only of use as leading to laryngoscopic examination. With the laryngoscope, the only possible mistakes are :—(1) To overlook the presence of the node owing to catarrh of the vocal cords; this is rectified as the catarrh clears up. (2) Mistaking the nodes for tumours, such as fibromata or papillomata. The nodes are, however, bilateral and opposite, invariable in position, and are part and parcel of the substance of the vocal cord.

Schnitzler looks upon the node as the direct result of inflammation, and calls them "inflammation nodes." Gottstein questions whether the node follows the inflammation or the inflammation the node, and leans to the latter view. In many cases, where there has been excessive use of the voice, I have observed on phonation a convexity of the free edges of the cords; this convexity causing the cords to come into contact at a point a little anterior to the middle of their length before apposition is complete. Morell Mackenzie points out the wavy line of apposition of the cords in paralysis of the crico-thyroid muscle, and this is probably an allied condition due to paresis of the same muscle, the most important tensor of the vocal cords, and thus the most likely to be first affected by fatigue. It is evident that if the crico-thyroid muscles are paretic, the comparatively unopposed thyro-aretenoideus muscles by their contraction will slacken the vocal cords, and allow them to bulge towards the middle line. The violent contact of the bulged portions of the cords against each other, if long enough kept up, will cause a thickening, just as in any other part of the body intermittent mechanical irritation leads to hypertrophy. And thus the actual cause of the node may be mechanical injury of the cord due to want of tone set up by fatigue.

Any general condition, such as anæmia, to be treated on general principles. Early cases (before the actual formation of nodes, and only present the lax vocal cords):—The indications are—Rest of the voice, a month at least, and in the case of singers two months if possible. When speaking, the patient should be instructed always to keep the head up, so as to give full play to the crico-thyroid muscle. Avoidance of sudden changes of temperature is to be enjoined on the patient. Catarrhal conditions of the larynx to be treated, as they may be present, but no other local treatment. If after the rest of a month the tone of the vocal cords is not restored, unless the patient can reduce greatly the strain on the voice in his ordinary

occupation, he should be advised to seek another occupation. Galvanism or faradism over the region of the crico-thyroid muscles has not seemed to me to give any good result, but I have only tried these remedies in two or three cases, twice a week for a month. Later stages : The node actually present. After reduction of the catarrh of the vocal cords the pharynx and larynx should be rendered anæsthetic, by means of spraying with 10 per cent. solution of cocain, and painting over the larynx by a brush, with the same solution ; chromic acid fused on the end of a probe should then be applied to the nodes. The probe must be guided to the spot by aid of the laryngoscope, and the application of the chromic acid strictly limited to the nodes. Chromic acid in solution should never be used in the larynx, as it is impossible to be sure always that its application is limited to the desired locality, and, if diffused too widely, may give rise to violent laryngeal inflammation. The application of the fused chromic acid once or twice a week will usually reduce the dimension of the node considerably within a few weeks. It is necessary to stop the application during an inter-current attack of catarrh. I have no experience of the galvano-cautery in the treatment of nodes, but I should fear that the cicatrix resulting from the burn would often lead to contraction, sufficient to distort the free edge of the cord, and thus cause permanent impairment of the voice. In early cases the prognosis is good, but in advanced cases less favourable.—*Medical Chronicle*, February, 1895, p. 337.

35.—MALIGNANT DISEASE OF THE LARYNX.

By FELIX SEMON, M.D. Berl., F.R.C.P. Lond., President of the Laryngological Society of London ; Physician for Diseases of the Throat to St. Thomas's Hospital, &c.

From October 10, 1878, until November 22, 1894, I have seen in private practice 103 cases of malignant disease of the larynx. This list does not include those cases in my private practice in which, amongst other possibilities, that of the disease being malignant had also to be taken into remote consideration, and in which I had no opportunity of verifying the diagnosis by subsequent examination. But it does include :—(1) Those cases in which, although the diagnosis could not be formulated with absolute certainty on the occasion of the one or the few examinations I had the opportunity of making, all chances were in favour of the disease belonging to the class of carcinoma or sarcoma of the larynx ; and (2) a few cases in which the

carefully observed clinical course of the disease did not tally with the result of the microscopic examination. Of the two last-named categories I find in my case-books notes of 12 cases. In the remaining 91 the diagnosis was positively confirmed by the further course of the disease, and in a good many instances by microscopic examination of parts of the new growth removed either intra-laryngeally during life or obtained at the necropsy. In 38 of my 103 cases the growth was of the "extrinsic" variety, in 55 of the "intrinsic" variety, and in 10 it was "mixed"—i.e., it involved parts inside the larynx as well as outside. In the 38 extrinsic cases 2 "doubtful" ones are included, and in the 55 intrinsic 10 "doubtful" ones.

Up to May, 1886, I never advised radical operation in cases of malignant disease of the larynx. The results of both total and partial extirpation of the larynx at that time were certainly not very encouraging, and both operations were still entirely *sub judice*. Mere thyrotomy, on the other hand, with removal of the soft parts only, had met with almost universal condemnation. Under these circumstances it was not until one of my patients himself positively insisted on risking a radical operation that I ever consented. The result obtained in his case was so satisfactory that it encouraged me to advise radical operation henceforth in suitable cases, and I have not had cause to regret the change of my attitude. Altogether I have in private practice advised radical operation, from May, 1886, up to the present, November, 1894, in 16 cases of malignant disease of the larynx. In 4 of these cases, however, my opinion was only desired as that of a consultant, and I have therefore not felt justified in including them in the present series. So far as I know, in 2 of these 4 cases the result was successful, whilst in 2 others the patients succumbed from the consequences of the operation. In my own practice radical operation has been carried out in 12 cases; from 1886 to 1890 by surgical friends of mine, since then by myself. I have felt my way very cautiously, and in one case only I have deviated from my universal rule—viz., to limit radical operation to cases of purely "intrinsic" malignant disease. In that case the chances appeared so excellent, owing to the easy accessibility, the small size and the pedunculated nature of the new growth, that radical operation seemed not only justified, but plainly indicated. In all the remaining 11 cases, however, the disease was strictly limited to the confines of the larynx proper.

In order to ascertain the proportion of cases suitable, in my opinion, for radical operation from the total number observed between 1878 and the present day—viz., 103—those cases of course will have to be subtracted which I observed from October, 1878, to May, 1886. They number altogether 22,

and must be subdivided into 11 cases of "intrinsic," 7 cases of "extrinsic," and 4 cases of "mixed" malignant disease. From this it follows that from May, 1886, to the present day I have seen in private practice 44 cases of "intrinsic," 31 of "extrinsic," and 6 cases of "mixed" disease, or, altogether, 81 cases. Taking into account the one case of extrinsic disease in which I recommended radical operation, it would follow that in 44 cases of intrinsic disease I only fifteen times recommended radical operations. From these 44, however, one more case has to be subtracted. This was a very extraordinary case, in which, whilst only desiring to remove for microscopic examination a piece of a suspicious warty growth from the vocal cord of a man aged 75 years, by sheer good luck I succeeded in removing the whole growth with its base. The disease has not returned. Thus 43 cases only of intrinsic malignant disease remain, in 15 of which radical operation was advised; and this gives as nearly as possible a proportion of 2 to 6—*i.e.*, a small minority only in which I deemed radical operation advisable. The reasons of my advising in the majority of cases of intrinsic cancer I have seen, either directly against radical operation or, at any rate, only holding this out as a possibility to be thought of, were of various kinds. In a number of cases the disease, though still confined to the interior of the larynx, was of a very extensive character, and would in all probability have necessitated very serious operations, amounting in a good many instances to total extirpation of the larynx. In other cases the age of the patients was too advanced to justify the performance of a big operation. Again, in other cases there was either long-standing pulmonary, bronchial, or organic heart disease, or the general health had been shattered from other reasons, conditions which seriously militate against the performance of a major operation in the upper air-passages. I have never advised radical operation in cases in which the originally intrinsic disease had either passed beyond the confines of the larynx proper or in which it was primarily situated on the posterior surface of the cricoid cartilage, or in which affection of the cervical glands was already present. My reasons for not doing so were and are that in these cases not only must the operation be of a very extensive and most serious character, necessitating often not only the removal of the whole larynx, but also of a considerable portion of the upper part of the œsophagus, but also that it has under such circumstances often been found impossible to complete the operation, owing to the implication of the large vessels and nerves of the neck in the disease, and, finally, because, even if the operation can be completed and the patient recovers from its immediate effects, speedy recurrence is unfortunately too likely to take place. It appears to me that, whilst an operation

is still so much *sub judice* as radical operation of *any* kind in cases of malignant disease of the larynx, and whilst public opinion, even in the medical profession, is still so divided on the subject, it is wiser to at first confine such interference to cases in which a reasonable prospect not only of recovery, but of immunity against recurrence, can be held out, and thus to convince public opinion of the legitimacy and hopefulness of such radical operations. I wish, however, not to be understood, by thus limiting my own practice to the more favourable class of cases, as if I deprecated or condemned the practice of those surgeons who even in more advanced or otherwise apparently less favourable cases have not hesitated to undertake radical operation. I am, however, in no fear of contradiction if I say that the aim of all surgeons ought to be to perform radical operation at such an early stage of the disease that the operation can be limited to the performance of mere thyrotomy with removal of soft tissues only.

Out of 12 cases in which radical operations were performed the method was as follows:—Partial extirpation of the larynx (3 cases), 1 recovery, 2 deaths; thyrotomy with resection of portions of cartilage (4 cases), 4 recoveries; thyrotomy with removal of soft parts only (4 cases), 2 recoveries, 2 deaths; subhyoid pharyngotomy with removal of soft parts only (1 case), 1 death—total (12 cases), 7 recoveries, 5 deaths. If it be assumed that the 2 cases in which the malignancy was doubtful actually were of a malignant nature it will be seen that 5 patients died from the consequences of the operation and 7 recovered, a result which, though at first sight apparently not very brilliant, must be considered eminently satisfactory, as it means the saving of fully 58·3 per cent. of the patients from an otherwise inevitable death. This is certainly a most encouraging advance in our treatment of malignant disease of the larynx, and, so far as my knowledge goes, it very considerably surpasses the results hitherto recorded.

Up to the present moment it is almost universally believed that, even if radical operation in malignant disease be for the moment successful, a recurrence of disease within a comparatively short time is an almost unavoidable contingency. My results give the most emphatic and incontrovertible denial to this belief that could be desired. In 4 cases $6\frac{3}{4}$, $5\frac{1}{2}$, $3\frac{1}{2}$, and $2\frac{1}{2}$ years respectively after the operation there had been no recurrence, and in 1 case there is a doubtful recurrence. If the 2 doubtful cases be also considered in this connection the last of them, although the patient is at present perfectly well, has been performed at too recent a date to allow of any conclusions being made with regard to recurrence; in the other one it is now nearly a year and a half since the operation was

performed, and there is no trace of recurrence. It will not be questioned, therefore, I think, that with regard to recurrence my results are of the most encouraging character possible, and this the more so if it be considered that most of them have been obtained by operations which only a few years ago were believed by those most competent to judge to be altogether insufficient to eradicate the disease.

In 2 only out of 7 cases in which recovery took place no improvement of the voice was obtained. In the remaining 5 cases the vocal result was simply surprising. In that of the late Mr. Montagu Williams, for example, it is well known that for five years and a half after the operation—*i.e.*, until the time when his progressive heart affection compelled him to give up work altogether—he was able to fulfil the trying duties of a police magistrate, and this although the whole left half of the thyroid cartilage, the left arytenoid cartilage, and all the soft parts on the left side of the larynx had been removed.

On analysing the 6 causes of death we find : septic pneumonia, 2 cases (1 of them due to entrance of food into the air passages); general sepsis (?), 1 case ; bronchitis and cardiac syncope, 1 case ; death from ether, 1 case ; fully unexplained, 1 case. It must be hoped that in future operations such etiological factors as ether-death and entrance of food into the air passages may no longer appear in the list of causes of fatal terminations, whilst it will be difficult, if not impossible, to exclude the others named. —*The Lancet*, December 15, 1894, p. 1417, and December 22, 1894, p. 1474.

36.—THE TREATMENT OF ATROPHIC RHINITIS BY ZINC STEARATE.

By JOSEPH S. GIBB, M.D., Aural and Laryngeal Surgeon
to the Episcopal Hospital, Philadelphia.

The name atrophic rhinitis would imply an inflammatory condition with an atrophic element. When the cases come under our observation, usually there is rarely much of an inflammatory condition present, but there can be no doubt that the early history of these cases is one of inflammation. Bosworth has clearly demonstrated, and I believe his views are accepted by a large number of rhinologists, certainly in the United States, that the disease is the successor of that affection in children in which there is a purulent or muco-purulent discharge from the nose, and named for this reason purulent rhinitis.

The atrophic element in a case is at once noticeable. Dilating the alæ of the nose, we observe a roomy nasal chamber, the turbinates shrunken often to obliteration of the lower turbinate, and contracting the middle so as to give an unobstructed view through the nasal chambers to the posterior wall of the pharynx, a state incompatible with healthy function of the nasal chambers. We also observe these turbinate bodies, and especially the middle, covered by thickened crusts, which, upon removal leave a reddened surface and rarely an ulcerated spot on the mucous membrane. Before our investigation has reached this stage we are conscious of an all-pervading, disgusting odour emanating from the nose, which is likely to be increased on detaching the crusts. This has given rise to the name "ozena," a term which, while highly descriptive of one symptom, *i. e.*, stench, cannot be used as a synonym. Ozena simply represents a condition present in many cases of the disease, but not in all. The same condition is present in syphilitic and in carious disease, both of which are entirely distinct and will not receive consideration in the present article.

These two symptoms, the crusts and the ozena, give the keynote to the management of this intractable disease. The first step should be the entire removal of all crusts from the mucous membrane. Unless we are faithful and persistent in our efforts in this direction we cannot hope to meet with success. This is but a necessary prelude to the important step of bringing into contact with the diseased mucous surface medicaments of a stimulating nature, which will excite the perverted glands to secretion and perhaps aid in the regeneration of the mucous membrane. The method of accomplishing this object will vary with the operator; that is immaterial; the object is absolute cleanliness.

The plan pursued at the Episcopal Hospital, Philadelphia, is about as follows:—The nasal chambers are sprayed thoroughly with an antiseptic detergent solution, after which all rebellious or adherent crusts are removed with a small probe, the extremity of which is wrapped with a pledget of cotton; as this process is likely to be painful, it is well to first prepare the sensitive mucous membrane by a preliminary spraying of a 4 per cent. solution of cocain. By this means also the cleansing is done more effectively. Should the crusts prove unusually tenacious in their attachment, or should a layer of muco-pus cover the turbinates, the cotton-tipped probe is dipped in a solution of hydrogen dioxid and the crusts or pus is dissolved away. This latter is succeeded by another spraying with the antiseptic fluid, to remove the dissolved and frothy mucus or pus. While this procedure will doubtless cleanse the anterior nares, there still remains a large surface uncleansed,

viz. : the posterior surface of the turbinate bodies and the vault of the pharynx—the latter especially being liable to be the seat of inspissated mucus.

The post-nasal surfaces are probably better and more easily cleansed with the post-nasal syringe or by atomization. However, even in this locality the crusts are frequently so tenacious as to defy the usual methods with syringe or spray. In such cases they must be removed by means of a cotton-tipped probe bent at such an angle as to pass readily behind the soft palate and up to the vault of the pharynx. To effect this satisfactorily, and to avoid wounding the sensitive tissues of the upper pharynx and vault, and even the pharyngeal orifice of the Eustachian tube, full illumination with the aid of a rhinoscopic mirror should be employed.

I have dwelt thus on the details of cleansing, doubtless familiar to all present, to emphasize the fact that without it all subsequent treatment will be futile. Assured that our cleansing has been effective, we are ready to apply to the mucous surface our medications.

Compounds of zinc stearate have for their base zinc stearate, to which may be added any drug that the operator deems necessary for the case. They are dispensed as an amorphous powder, which has a saponaceous or oily feel when handled, and has a peculiarly strong adhesiveness to mucous surfaces.

The indications for treatment, as already stated, are that we shall have some drug of a stimulating nature for the purpose of exciting the perverted mucous glands to increased activity, and, if possible, aid in the regeneration of the destroyed tissue. Europhen was the stimulant selected for incorporation with zinc stearate. After the cleansing process, a powder of zinc stearate, with europhen, 25 per cent., was blown into the nasal chambers with the insufflator, so that a thin layer of the powder was apparent over the middle and lower turbinates and the septum.

The observations in the use of this drug have extended over a period of a year-and-a-half at the clinic of the Episcopal Hospital, and they include fifty-four carefully selected cases, *i.e.*, those in which crusts were invariably present, and in the majority accompanied by ozena. All cases presenting simply an atrophic or rather sclerotic condition of the turbinates, unaccompanied by crusts or ozena, have been rigidly excluded, for the reason that they admitted of a doubt as to the diagnosis between the secondary sclerotic change of hypertrophic rhinitis and the disease in question. All of these cases were seen in dispensary service, a source admittedly difficult and unsatisfactory in making deductions or drawing conclusions.

As a matter of convenience and in order the better to study the results, these fifty-four cases have been divided into three

classes : (1) Those that were persistent in treatment and faithful in attendance ; of this class there were 12. (2) Those that presented themselves at the clinic at irregular intervals, though seen at times over nearly the whole period of these observations, namely, eighteen months ; this class numbered 20. (3) Those that presented themselves but once or twice after the first treatment ; these numbering 22, have been excluded from all deductions ; therefore the observations may the more properly be said to cover thirty-two cases.

The treatment was employed twice weekly ; in the interim of the visits, the patient was directed to use a hand-atomizer containing a solution of Seiler's tablets.

After the first cleansing and subsequent insufflation there was in all cases an entire absence of odour, and in the larger number this was persistent, no odour being perceptible upon any of the subsequent visits. It is quite evident to all rhinologists that simple cleansing is not sufficient to effect this result. In five of the most pronounced cases an odour was still perceptible at three, or at the most four, visits subsequent to the first cleansing and treatment, after which it entirely disappeared in the three that belonged to the first class ; whilst in the two that fell in the second class, the odour, after the fourth or fifth visit, though still present, was markedly diminished, leaving me to infer that had the treatment been faithfully continued the result would have been the same as in the first class.

As to the crusts, in the large majority of cases no crusts formed after the first treatment ; the appearance presented at the subsequent visits was that of a thin layer of muco-purulent secretion covering the turbinates, which became smaller and smaller in quantity at each subsequent visit until finally it disappeared, leaving the turbinates moist and free from the familiar dull, glazed appearance.

To sum up : In a total of thirty-two cases of atrophic rhinitis that have been under observation, the shortest time being two months, the longest eighteen months, there were twenty-seven in which there was a complete disappearance of crusts and odour, and two of these cases promised a restoration of normal functions and structure. In five the results are very doubtful, though the improvement is sufficient to promise more for the future.—*Medical News*, December 8, 1894, p. 629.

DISEASES OF THE ORGANS OF DIGESTION.

37.—ENTERALGIA.

By PROFESSOR POTAIN (Hôpital de la Charité).

Enteralgia is a disease fairly common in Russia and England ; in the latter country it is frequent, because it is a neurosis of arthritic origin, especially as there is frequently a gouty hereditary taint laying the foundation for the disease. The characteristics of a pure enteralgia are the paroxysms of pain appearing at varying intervals, and the suddenness of the onset without any dietetic error ; the pain is situated either in the epigastrium or around the umbilicus, where it has its point of maximum intensity ; it radiates to the right hypochondrium, to the loins, along the ureters, and down the lower limbs. These symptoms require special attention, lest an error of diagnosis be made. The pain is exceedingly acute and overpowering, to such an extent indeed that the patient may faint : usually, however, it is less than in hepatic or renal colic ; there is abdominal distension varying in amount, but it is always soft. In prolonged crises nausea followed by vomiting of food occurs : this is always painful, and it may even be faecal in character ; there may also be frequent calls to stool. Ordinarily the evacuations are difficult, and the faeces present a series of progressive modifications. A few days before an attack they are hard, and become more so as the attack progresses, and finally ribbon-like ; they may be reduced to the thickness of a lead pencil, but always preserve their consistence. When an attack is over, the faeces return gradually, sometimes suddenly, to their normal size, often with a copious evacuation. There is no pyrexia nor loss of appetite ; to abstain voluntarily from food on account of pain sets up a neuropathic condition which leads to loss of power with general mental and physical impairment. Enteralgia may be directly inherited, or may be the representative of grave intestinal disease ; the heredity of localisation becomes as important as a transmitted diathesis. Instead, however, there may be transmitted only a tendency to neurasthenia, especially in gouty subjects ; hence it is chiefly met with among men of high mental capacity. Early and excessive mental exertion is liable to give rise to an outbreak, but more usually it arises from some depressing cause. Essentially the disease is a purely nervous malady, and is marked by three orders of symptoms—pain, functional intestinal troubles, and the neuropathic condition. Probably there is first of all a change in the intestinal functions which precedes the pain ; but, as Cherchevsky has pointed out, the pain is increased out of all proportion to the smallness of the demonstrated intestinal troubles, and as soon as it ceases the

evacuations become normal. Occasionally the change in function is due to a catarrh, for which the patient is sent to a warm climate; in others there may be an increase of the intestinal secretions due to a muco-membranous colitis, which may be a gouty manifestation, especially in neurotic subjects. Again, the constant irritation of the intestine may set up a neurotic condition due to changes in the reflexes from the large intestine; similar changes are often set up by mental fatigue. In enteralgia two symptoms are remarkable—the intestinal distension and the changes in the stools; doubtless, the hardened cord felt in the left iliac fossa represents a spasmodically contracted condition of the sigmoid flexure, which leads to imprisonment of intestinal gas, and is due to a true mucous secretion. As in hysteria, the abdominal distension appears suddenly, and disappears without any evacuation; unlike hysteria, there is no swallowing of air, and the disappearance of the distension without any evacuation probably is due to a reabsorption. How far this spasmodic contraction extends can only be surmised; percussion only demonstrates the presence of distension. Enteralgia may, then, be regarded as a painful spasm the pathology of which is closely akin to the colics; this spasm is favoured by a neuropathic condition either acquired or inherited by the patient, and the frequent repetition of the attacks reacts on the nervous system. If the functional trouble of the intestines is the chief factor, laxatives are indicated; if the spasmodic condition is more marked, belladonna and sometimes opium, in minute doses, are very useful; to prevent this condition, ether and valerian, preferably the ammoniated tincture, act very well; in the intervals between the crises, castor oil, sulphur, and rhubarb are most useful; drastic purgatives, especially aloes and senna, and even the salines, are contra-indicated owing to their stimulant action on the intestines. During the seizure hot baths should be employed. Hot bathing, in the intervals, acts beneficially on the gouty tendency, but all exposure, especially to chills, should be avoided. The mineral-water (preferably dilute) cures act well rather from the manner in which the bathing is conducted. Well-directed hydrotherapy is beneficial. Faradisation during an attack ought to be with the brush—it should be superficial, and ought not to provoke muscular contractions: to effect this the skin should be dried with an inert powder. In the intervals it should be pushed to affect the muscles, especially when the abdominal walls have lost their elasticity. Continuous currents are useful in paralytic forms. Attention to physical and moral hygiene is of the first importance, a variety of therapeutics almost impossible in hospital and practicable only in private life. [“La Semaine Médicale,” November 28, 1894.]—*The Practitioner*, February, 1895, p. 164.

38.—COLITIS.

By W. HALE WHITE, M.D., F.R.C.P.Lond.,
Physician to Guy's Hospital.

The colon is affected by a number of well understood diseases, as dysentery, tuberculosis, cancer, and anthrax, and in the post-mortem room many other extremely interesting conditions—as, for instance, follicular and distension ulcers and the forms of colitis associated with pyæmia, Bright's disease, &c.—are seen; but, apart from all these, there appear to be three forms of colitis of clinical interest, which may be termed “simple colitis,” “membranous colitis,” and “ulcerative colitis.”

(1) *Simple Colitis*.—The chief symptom of this is diarrhœa. The motions contain much mucus and usually small, but sometimes large quantities of blood, which is fluid and but little altered, having clearly come from low down in the bowel. Under the microscope unaltered red blood cells, some leucocytes, and triple phosphate crystals may be seen. Early in the case there is usually very little fæcal matter. The onset is generally sudden; the bowels may be open many times a day, and in most cases there is some abdominal pain (for the most part along the course of the colon), especially during defecation, but it is not often excruciating, nor is tenesmus very marked. Abdominal tenderness is nearly always present, chiefly over the sigmoid flexure, but it may be over the whole colon or the whole abdomen. The rectum may feel a little rough, and may be injected and covered with mucus; the tongue is covered with a white fur, but is commonly free at the edges and tip. If the case is severe the temperature is raised, and if the diarrhœa continues the patient loses weight. Flatulence, abdominal distension, loss of appetite, nausea, and vomiting may all be present, but are not commonly very striking. There is nothing noteworthy about the pulse, for its characters are the same as are usually observed in any severe abdominal disease. The cases vary much in severity, and if untreated may drag on for some time, even proving fatal. The patients are often of a depressed, hypochondriacal turn of mind. The most important part of the treatment is to put the patient to bed, to keep him warm, and to give him only small quantities of milk at frequent intervals. Opium, bismuth, and compound catechu powder are valuable for checking the diarrhœa, but directly it appears that this is about to cease astringents should be withheld, for the subsequent constipation is often very troublesome. It is best overcome by rectal injections of glycerine or warm olive oil. The hemorrhage is rarely severe enough to call for special treatment; probably injections of

equal parts of water and liquor ferri perchloridi thrown as high up the rectum as possible are the best remedy. Milk or at the most farinaceous diet and complete rest in bed must be continued till all the symptoms have disappeared, and the longer the case has been left untreated the longer will the treatment last. If the patient die, the mucous membrane of the colon will be found to be injected, red, or even livid; the submucous tissue is swollen; an excess of mucus can be seen on the surface; and there may, in an exceptionally severe case, be a few flakes of lymph or a few minute quite superficial ulcers.

(2) *Membranous Colitis*.—In this disease the patient passes from the rectum whitish membranous casts of the bowel. The subjects of it are mostly women over 20 years of age; they are anæmic, thin, complain of feeling cold, and suffer much from indigestion, often accompanied by some constipation. They are poor eaters, and the tongue is slightly covered with a white fur. Usually they are of a depressed, melancholy turn of mind, and appear to get very little enjoyment out of life. This description applies in a well-marked case to the habitual state of health, but from time to time there are exacerbations during which all these symptoms become more severe, and in addition there is much griping pain in the abdomen, commonly in the course of the colon, and for the most part bearing no relation to food, and there may be nausea or even actual vomiting. After this state of things has gone on for a few days the patient begins to pass membranes and often blood from the bowel; this is not clotted, and has clearly come from low down. The membranes, which some patients call “skins” and others compare to pieces of tapeworm, are greyish or yellowish white, of sufficient consistency to remain intact when held up, and they vary from being very thin to about an eighth of an inch thick. A good specimen forms a complete cast of the colon, with perhaps some faecal matter in its interior, and may be more than a foot long; but often only shreds, which are clearly fragments of larger pieces, are present, and these may have been rolled up into a tight ball by the movements of the colon. Under the microscope the membranes are seen to be structureless and somewhat transparent, with, embedded in them, a few minute pieces of undigested food, faecal matter and some crystals, chiefly triple phosphate. Fatty epithelial cells may also be seen, clearly suggesting by their collection together and their arrangement that they are the cast-off cells of Lieberkühn’s follicles; and the inner surface of the membrane is marked by a number of pits which correspond to the mouths of these follicles. Several leucocytes may also be seen. Chemically, these membranes are albuminous. The duration of an exacerbation during which membranes are passed may be only a few days, or they may

continue to be passed for several years. Some motions contain fæcal matter, blood, and membrane ; others contain only one or two of these three constituents. The fæcal matter is usually in the form of hard scybala, and constipation is more common than diarrhœa. I have seen one fatal case. No membranes had been passed for some time before death, and the colon was thin and marked with slight patches of congestion. Otherwise the whole body was normal. Treatment is very unsatisfactory. No drugs are known to have any certain effect for good. The body and mind must be maintained in the best general health possible. The patient should take plenty of outdoor exercise of such a nature as to occupy her mind as well as her body. Her diet should be abundant and simple, but at the same time carefully prepared, so as to tempt her to eat. Often the patient imagines she cannot eat this and that, and so she becomes very fastidious. A firm attempt to break this bad habit must be made. She should have some definite employment to occupy her mind, and when not at work should associate with cheerful companions rather than be left alone. Purgatives are particularly to be avoided. Every attempt must be made to get the bowels to act regularly, and the patient should go to the watercloset every morning whether or not she thinks the bowels will be moved. Her meals should be regular and she should go to bed early. If the pain or diarrhœa is at all severe she had better remain in bed, and some astringent—as bismuth—may be necessary. Opiates may be required for the pain, but they should be given sparingly, lest the patient become a confirmed opium or morphia taker, and all astringents should be ordered in small quantities because of the subsequent constipation. This is best overcome by a rectal injection of warm oil or glycerine. It has been suggested that in a very intractable case it might be justifiable to open the colon high up and, by allowing the fæces for some time to pass out through the artificial anus, to give it rest, and at the same time to flush it from the artificial opening to the natural anus with boracic acid lotion.

(3) *Ulcerative Colitis*.—This disease is about equally common in the two sexes, and the sufferers from it are usually between 20 and 50 years of age. It is ushered in by frequent attacks of pain, usually paroxysmal, severe, griping, and referred to the front of the abdomen. Between the attacks of which there may be several in a day, there may be a slight dull pain, or even none at all. Severe diarrhœa is another early and constant symptom, and the bowels may be open five or six or more times a day. The act of defecation is accompanied by much abdominal pain, but marked tenesmus is rare. The motions are fluid, slimy, and foul smelling ; usually some fluid blood—it may

even be a large quantity—is present, and a few small lumps of fæces may be seen. Mucus is never present in large quantities. There may be some shreddy looking material, very like sloughs. For a day or two between the periods of diarrrhœa there may be periods of constipation, during which more solid motions are passed. Many patients, before they have been admitted to the hospital, have suffered from vomiting, but this usually ceases under dieting and careful rest. The tongue is covered with a dirty whitish fur; as the disease progresses it becomes red and dry, with a brown fur. The patient has the pinched expression often seen in abdominal disease, he is extremely anæmic, his abdomen is somewhat distended, peristaltic movements may be visible, and ulceration may occasionally be felt per rectum. As the case goes on the anæmia and weakness progress, the patient looks extremely ill, and his pulse is feeble. Generally there is irregular pyrexia during the whole of an attack, the temperature commonly ranging between 100° and 102° F. The prognosis is extremely grave—in fact, we have no convincing evidence that the disease is recoverable. The duration is usually less than eight weeks; the commonest cause of death is exhaustion, but some patients succumb directly to perforation. In this country acute dysentery is so rare that there is not likely to be much confusion between it and ulcerative colitis. The different character of the stools and prominence of tenesmus, the burning pain within the anus, and the very frequent evacuation of the bowels in dysentery would help to establish the diagnosis. The diseases that I have known to be confounded with ulcerative colitis have been phthisis, malignant disease of the colon, intestinal obstruction, and pernicious anæmia. Post-mortem examination of many cases shows that in a typical example the muscular coat is exposed by ulceration, which is often so extensive that only islets of mucous membrane are left here and there. These are often considerably swollen, and consequently they look taller than they otherwise would, and frequently they are more or less sessile because of the ulceration that undermines them. The result is that a careless observer concludes that the colon is covered with polypi. The ulcers may be very numerous, and they may run together to form large, irregular, ulcerated areas, with here and there perhaps a sloughy floor. The vessels are usually dilated; it is rare to see any attempt at healing. If the patient die early in the course of the disease the ulcers may be superficial and the mucous membrane very soft and congested. Sometimes the small intestine is affected as well as the colon, but to a less extent. Histologically the process is the same as is usually seen in chronic ulcerations. About half of the patients who die from ulcerative colitis show no disease except

that of the intestine. The associated diseases which in any way suggest a special connection are Bright's disease, gout, and hepatic abscess. Among 23 cases of ulcerative colitis of which I have notes of the condition of kidney, chronic interstitial nephritis was present in six, and of the remaining 17 two had urate of soda in their joints. The association with suppuration of the liver is very rare, but probably there are two distinct varieties of it, as there are of hepatic abscesses in association with dysentery—namely, the small multiple pyæmic abscess and the large solitary abscess. Treatment, unfortunately appears to have very little affect on the disease. Absolute rest in bed, with slop diet and opium, and hot fomentations if the pain and diarrhœa are very severe, probably afford the best chance, but the prognosis is exceedingly grave.—*The Lancet*, March 2, 1895, p. 537.

39.—ON THE TREATMENT OF NON-MALIGNANT STRICTURE OF THE PYLORUS.

By ALEXANDER OGSTON, M.D., Surgeon to the Aberdeen Royal Infirmary.

[Charts showing the progress of dilatation by the method described are here omitted.]

Any method that offers a fair prospect of effecting a cure of non-malignant stricture of the pylorus without the risks that an operation entails is worthy of consideration; and such a method, now to be described, I have carefully tried, and from my experience of it am inclined to recommend in suitable cases of the disease. The method suggested itself in the following way. Having had to deal with a few cases of pyloric stricture, I was led to consider whether some safer plan than operation might be devised for overcoming the stricture. Why should a pyloric stricture, or for that matter any non-malignant and therefore cicatricial stricture, of the intestinal tract not be dilated and cured by similar methods to those by which we dilate and cure those of the urethra and rectum? Why not pass through them something that would act in the same fashion as a bougie? It is evident that the passage through the stricture of a hollow viscus in any part of the body of the liquid or pulpy matters it contains does not dilate the stricture from within like a bougie. We have daily evidence of this in the œsophagus, rectum, and urethra. But since bougies are out of the question in non-operative treatment of the pylorus, it seemed probable that if solid spheres of the diameter of bougies suspended in the food were passed through the stenosis they

might act like bougies and produce the same results. Whether the natural forces operating in propelling onwards the food would suffice to carry them through, and whether unforeseen difficulties might not arise, could be ascertained only by an actual trial. The first attempts were made with spheres of sugar coated with various substances which it was supposed would resist the digestive process until they had passed the pylorus; and several materials were made use of to form the spheres. But nothing was found suitable save gutta-percha rolled in the hand into globules, and these arranged into sizes by passing them through a gauge for urethral or œsophageal bougies. Gutta-percha spheres are easily and simply made, and, being of almost the specific gravity of the stomach contents, have no tendency to settle in the lowest part of the stomach or to float in the uppermost strata of its contents. The gauges chosen were those on the French scale, which gives a greater selection of sizes and a more gradual dilatation; but so sensitive is the pylorus that it was afterwards found convenient to mark intermediate sizes between two numbers, thus between, say, Nos. 20 and 21 would come 20+ and 20-, the former being one that passed with difficulty through No. 20 aperture, the latter passing with ease through No. 21 aperture of the gauge plate. It was at first thought that the spheres would be most efficacious if given by the mouth at night, the patient sleeping on his left side; but they were found to cause sleeplessness from restlessness of the lower extremities ("fidgets") and bad nightmares, so that this was abandoned, and they were given in the early morning, just after breakfast, and the patient allowed to go about his usual avocations. By this plan they caused less discomfort, and the only precaution taken was to forbid very hot food and liquids, which might have softened the gutta-percha so much as to destroy the rigidity of the sphere. They are found in the fæces, having passed through the alimentary tract without alteration. It is not difficult, by observation of the patient's symptoms, to form an approximate idea of the size of the pylorus in cases of stricture. If the pylorus be narrowed at all, this is at once shown by the discomfort or suffering that follows the eating of large morsels of tough food, such as beef and mutton. Moderate mastication does not reduce such morsels full of tough fibrous structures to such a size as to permit of their passing through the orifice without inconvenience, and the patient experiences uneasiness or prolonged cramp-like pains, extending from the right epigastric region to the angle of the left scapula, an hour or two after eating, and continuing until they are relieved by a gurgle of flatus and food passing into the duodenum. Hence such patients avoid these articles of food instinctively, and select softer substances, like fish, or more

finely divided foods, like minced meat, puddings, and pulpy articles of diet. If ordinary minced meat can be taken without discomfort, the stricture is certainly greater in size than a No. 10 or No. 20 urethral bougie of the French scale. If the orifice is less in size than this, only liquid and pulpy foods, containing no solid particles larger than boiled rice, can be taken without distress.

These data are of assistance in commencing the treatment, as by regarding them the approximate size of sphere to use can be pretty well ascertained. The treatment is best commenced by administering immediately after breakfast a sphere which is considerably less in size than the estimated size of the stricture, the patient swallowing it like a pill in a mouthful of some cold liquid. If it causes no feeling of uneasiness in the pyloric region a larger size should be given next morning, and so on. When the effective size has been reached it will be known by its causing within twelve hours uneasiness or soreness in the pyloric region, and perhaps cramp-like pains in the stomach, until it has traversed the stenosed portion of the bowel. These pains are very characteristic, and as the treatment has to be guided by their appearance and nature a more minute description of them may be useful. After a sphere which just fits the pyloric stricture has been swallowed, a certain time, varying from three quarters of an hour to five or six hours, or even more, elapses without any unusual sensation, and then discomfort gradually comes on in the pyloric region, in nature something between a stitch and a cramp, and often accompanied by intermittent cramp-like pains extending along the stomach towards the spleen or left scapular angle. The former sensations I presume to be caused by the sphere irritating the pylorus as it passes through the stricture, and where the stricture is a long one the discomfort can be felt passing along it as the sphere advances, and finally it disappears with a rush or two of flatus as the sphere escapes into the duodenum beyond; the latter intermittent cramp seems to be due to the efforts of the stomach to overcome the obstruction. The amount of discomfort experienced by the patient is in proportion to the tightness with which the sphere fits the stricture; should this not be excessive, a slight soreness at most may be felt on the following day, or even for a day or two, when food is passing the narrow part; but if it be excessive the pain may be sharp, knife-like, or, like the pain of ulceration, may be accompanied by tenderness on pressure over the pylorus, and may continue for a day or two, or even a week or more. In this case it is generally associated with heartburn and acidity, and is significant, I incline to believe, of small fissures or abrasions of the stricture having been caused, for the employment of alkalies and bismuth, to keep the contents

of the stomach alkaline, is very serviceable in overcoming it. Such attacks occurring during the dilatation treatment demand care lest the size of the spheres be unduly increased before they have completely subsided, and until this takes place it is well to rest satisfied with maintaining the dilatation already obtained, and administer only spheres of the same dimensions, or even to use them a size smaller and allow it to retrograde somewhat. In the chart of a case that is given in this paper such a condition may be seen to have occurred and proved obstinate from the 120th to the 280th day of treatment.

After the size of the stricture has been determined the treatment consists in administering successively larger spheres at intervals of five days, or as nearly so as possible. If the sphere be of suitable size some uneasiness ought to be felt during its passage through the pylorus, and on this account it is advisable to administer it in the morning, for it is less annoying during the movement and occupations of the day than at night, when the discomfort is more observed, and gives rise to bad dreams, nightmares, insomnia, and sometimes nerve pains, resembling the pricking of a needle, in the right lower extremity, or it may be in both lower limbs. Next day slight pyloric discomfort is usual after food, but is unimportant unless it become severe or prolonged, in which case the next sphere should be used of the same or a less size. The spheres produce no uneasiness in their passage along the rest of the intestinal tract. My experience is confined to four cases, of which only one was satisfactorily observed. In it 810 days were required to dilate the stricture from 16 to 40 millimetres of circumference, or from 5 up to 14 millimetres diameter. Sometimes the dilatation made no progress for considerable periods, perhaps because great caution was observed. But on the whole the dilatation made steady progress, and the patient's condition and symptoms improved along with it. The dilatation has not been pushed beyond 40, French bougie scale, as with care in diet this is sufficient for the wants of the patient, and he suffers only when he eats unminced flesh. One of the other cases proved to be cancerous, and the treatment was given up. In the third case I could not learn the result, as the patient passed out of my hands; and in the fourth case the stricture was so small that only water, milk, and beef-tea could be taken, the stomach was dilated, and the patient died before it could be ascertained if even the smallest sphere had passed through. Operative measures were steadily declined in this case by the patient. No post-mortem examination was permitted, but I imagine the stricture was barely large enough to admit an ordinary probe. This shows that only where the treatment is early begun is there a good prospect of its succeeding. But in such cases, where the patient has the

necessary intelligence and perseverance and the medical attendant can watch over, encourage, and direct him, I am satisfied that the results can surely be counted upon, and a perilous and doubtful operative procedure avoided. The method may possibly be employed with advantage in other strictures of the intestinal tract, but I have had no opportunity of employing it in any such.—*The Lancet*, March 23, 1895, p. 742.

40.—THE ABSENCE OF FREE HYDROCHLORIC ACID IN CANCER OF THE STOMACH.

By RICHARD B. FAULKNER, M.D.

It is important to know whether free hydrochloric acid is secreted by the stomach. It is important to know whether its absence from the stomach is an indication of cancer of that organ. Osler states that "great stress has been laid of late years upon the absence of free hydrochloric acid in the secretions. As an outcome of the enormous number of observations which have recently been made, it may be said that free hydrochloric acid is absent in a majority of cases of cancer of the stomach. This defect is associated with impairment of the secreting functions of the organs. The examination should be made repeatedly by the methods already referred to, and with our present knowledge the persistent absence of HCl in the stomach contents, taken in conjunction with other symptoms, may be regarded as highly suggestive of cancer. As Kinnicutt expresses it, 'the presence of HCl in the stomach in repeated examinations in doubtful cases is of the greatest diagnostic value, and points very certainly to absence of cancer.' Rosenheim has very recently shown that in cases in which cancer develops in the base of an old ulcer HCl may be present throughout the course." Kinnicutt's statement can not be proved.

Rosenheim contradicts Osler. If "the absence of free HCl is associated with impairment of the secreting function of the organ," then why should a cancer situated at the base of an old ulcer form an exception to the rule when, as a matter of fact, the ulcers themselves impair and often destroy the secreting functions? If Rosenheim is right, then free HCl is absent in cancers not seated at the base of old ulcers. If cylindrical-celled epithelioma and encephaloid cancers constitute a major portion of all cancers affecting the stomach, as is stated by Osler, and if they have always a particular tendency to develop at the site of ulcers, scars, and injuries, according to Paget,

Holmes, Erichsen, and others, then, if Rossenheim is any authority, are we not to conclude that free HCl must be present in the majority of cases of cancer of the stomach?

To obtain the gastric fluid for chemic examination, Ewald's test-breakfast is advised by the leading text-books. This consists in giving a roll of white bread and one glass of water or a cup of tea. One hour later, the contents of the stomach are removed with a rubber tube. No rule, no instruction of any kind, is given in any text-book whereby we may positively know that the stomach is actually empty at the time the test is applied. And in cases of stenosis of the pylorus it is not only possible, but probable, that the stomach is not entirely empty. However, as a result of Ewald's test, "free HCl should be present, but lactic acid absent." (Pepper.) "Should contain free hydrochloric acid; should not contain sufficient lactic acid to be recognised by the ordinary tests." (Osler, page 345).

Physiologic chemistry contains no problem more difficult than the determination of free hydrochloric acid in the gastric juice. Many authors assert its presence as a normal constituent, and of the analyses *quoted*, in Foster's "Physiology" for example, no two agree; they vary in the proportion of free acid all the way from .05 to .5 per cent.

"The best and simplest test," says Osler, "is that of Gunzбург: phloroglucin, 2; vanillin. 1; absolute alcohol, 30. To a drop of the gastric contents (better filtered) add a similar quantity of the reagent on a porcelain plate. On evaporation gradually to dryness over a flame, a beautiful rose-red colour begins to appear at the edges if HCl is present. This is merely a test for a free mineral acid, but HCl is the only one present in the gastric juice. This test is extremely delicate, and is not interfered with by albuminates, acid salts, or organic acids." (Pepper). The simplicity of Gunzбург's proceeding would be valuable if the test were reliable. But colour tests as a rule are unreliable; and this of Gunzбург forms no exception.

Gunzбург's test is not a test for free hydrochloric acid. It will show the presence of free HCl where none existed previous to its application. Sodium chlorid is a constituent of the gastric juice. If lactic acid is present in the stomach contents, evaporation of a drop over a flame will concentrate the acid, which will then attack the sodium chlorid and form free HCl. Other concentrated acids will do the same.

Gunzбург's test is not a test for a free mineral acid. The identical rose-red tint will be obtained when no free mineral acid is present. Many foods that contain no acid, mineral or other, taken into the stomach will produce precisely the same rose-red tint of the supposed test. Again, there are acids formed in the body, not mineral acids, that will produce the

same brilliant rose-red tint of the so-called test. For example, in those who possess the oxalic diathesis, oxalic acid is formed in the living body by oxidation. Oxalic acid decomposes dry sodium chlorid when heated, with evolution of hydrochloric acid. Oxalic acid responds perfectly to the Gunzбург test in the presence of sodium chlorid. Oxalic acid exists in many of our food plants, as a salt of potash, and is widely distributed in vegetation. Bin-oxalate of potash is found in common sorrel, wood sorrel, and in garden rhubarb associated with malic acid. It exists in great abundance in tomatoes and in many other acid fruits.

Gunzбург's test is utterly, absolutely worthless, as proved by the following experimentation :—

Experiment 1.—With a minute quantity of binoxalate of potash, sodium chlorid and lactic acid, Gunzбург's test yields on evaporation over a flame a rose-red tint identical with that produced in the presence of free hydrochloric acid.

Experiment 2.—With a minute quantity of binoxalate of potash, sodium chlorid, and tartaric acid, the same brilliant rose-red tint is obtained when evaporated over a flame in the presence of the Gunzбург test solution. Baking powders contain tartaric acid. A biscuit or a roll of bread, as in the Ewald test-breakfast raised with baking powder, contains tartaric acid. And wines contain tartaric acid.

Experiment 3.—Bin-oxalate of potash and sodium chlorid, dissolved in water, and Gunzбург's test added, yield when heated over a flame a rose-red tint identical with that produced by free hydrochloric acid.

Experiment 4.—Tartaric acid and sodium chlorid, dissolved in water, and Gunzбург's test added, yield when heated over a flame a rose-red tint identical with that produced by free hydrochloric acid.

Therefore, if a patient suffering from a cancer of the stomach were to eat a little rhubarb or tomato, or take a drink of wine and Gunzбург's test were to be applied to this gastric contents, it would be conclusively proved that he had no cancer !!

Uncombined hydrochloric acid is not found in nature, except as an occasional volcanic product. No mineral acid is necessary in the process of digestion. Pavy states that HCl has no particular property in rendering the digestive power of the gastric juice more energetic. The presence of free hydrochloric acid as a normal constituent of the gastric secretion has never been demonstrated. The only way to positively prove its presence is to separate the acid; just the same as you would be required to separate arsenic from the contents of the stomach in a supposed case of poisoning by that mineral.—*The Journal of the American Medical Association*, March 2, 1895, p. 315.

DISEASES OF THE URINARY ORGANS.

41.—URIC ACID GRAVEL—ETIOLOGY, SYMPTOMS,
AND TREATMENT.

By VAUGHAN HARLEY, M.D., F.R.C.P., Assistant Professor of
Pathology and Teacher of Chemical Pathology,
University College, London.

Under the head of uric acid gravel we place that diseased condition in which uric acid is precipitated in the urine either in the tubules of the kidney, urinary tract, or in the urine immediately after being passed. Uric acid under normal conditions is kept in solution in the urine by certain means, and, further, the quantity found in the animal body depends upon certain definite circumstances. The appearance of a precipitate of uric acid can arise from two causes:—First, an excessive formation of uric acid whereby the solvent power of the urine is insufficient to keep the increased quantity in solution. Secondly, a diminution in the quantity of the natural solvents for uric acid in the urine, which leads to its precipitation, although the total quantity may be normal or even less than the normal standard.

As regards the first cause we know that hereditary predisposition plays an equally important part in uric acid gravel deposits as it does in gout. The hereditary cases in which there is a total daily increase of uric acid may be put down, according to our present knowledge of the matter, to some more or less marked form of leucocytosis. In children, in whom uric acid gravel is common, new cells are both rapidly built up and rapidly broken down, and in them the leucocytes of the blood are in a greater proportion than in adults.

In the next place, the kind of diet is supposed to have an important influence on uric acid gravel, animal proteids seemingly increasing it more than vegetable. As regards the daily quantity of uric acid passed, A. Herman found on a vegetable diet 0·478 grammes, on a mixed diet from 0·636 to 0·674 grammes, and on an animal diet as much as 0·981 grammes. Alcohol increases the quantity of uric acid formed. The taking of large quantities of water was found by Schöndorff and others to have no influence on the quantity of uric acid eliminated. Muscular exercise has also an effect on the daily amount of uric acid excreted. Excessive muscular exercise tends to a leucocytosis, so would explain the increased uric acid elimination. The exercise may not be excessive in the ordinary sense of the word.

If we turn to the second cause of uric acid gravel, we find heredity here also probably plays an important part. It has been by many observers noticed that urines that tend to deposit uric acid are often very pale. I have frequently found these pale urines depositing uric acid, although the total quantity is not increased, are to be especially met with in people suffering from the condition we now recognise under the head of neurasthenia, and this is, as you all know, often hereditary.

Diet alone also plays an important part in this form of uric acid precipitate when no excess of uric acid occurs. The mere taking of food poor in salines increases the tendency to gravel, and that even when the daily quantity of uric acid excreted is very small, as, for example, when an almost starving amount of food is being taken. Sir W. Roberts pointed out that uric acid concretions are common among Hindus, who live almost exclusively on rice, a food poor in salines. Hutchinson showed that uric acid gravel is rare among sailors, who eat salt meat, and consequently take in a superabundance of salines, while naval officers, who live much the same life but take fresh meat, are by no means immune. Muscular exercise, when carried to excess, has also a tendency to increase the acidity of the urine, and hence the deposit of uric acid by this means.

The principal factor in this condition is naturally the presence of free uric acid crystals in the urine either before or immediately after being passed. It is as well always to remember the urine is most acid after a long fast, such as takes place during the night, and therefore one ought to examine an early morning specimen. In cases where the precipitation of uric acid takes place in the urinary tubules it irritates their epithelial lining, and hence causes the formation of hyaline casts. In some cases the irritation is to such an extent as to cause albumin or even blood to appear in the urine.

I think all observers who have employed the centrifuge in the separation of the urinary deposit are agreed that hyaline casts are a common accompaniment of uric acid crystals. I have frequently met with them, as well as occasionally cases in which uric acid crystals were embedded in granular casts. These uric acid casts are best found in urine passed in the early morning and centrifuged while fresh. *Débris* of epithelial cells are nearly always found when the centrifuge is employed, and in some cases the deposit reveals the existence of a pyelitis.

In cases belonging to the second group, in which the uric acid is not in excess, the urine is nearly always very acid, and generally much paler than normal urine. In fact it is what one would call a very watery urine.

A good rough test to recognise a tendency to uric acid deposit, even when no precipitate occurs, is to pour very slowly into

a test tube nitric acid so that a layer forms. The urine thus treated, if it shows a cloudy ring above the junction of the two liquids before it has stood five minutes, has a tendency to deposit uric acid ; if between five and ten minutes it is normal ; while when it takes longer than ten minutes either the total quantity of uric acid is below normal or it contains more than the usual amount of solvents. This uric acid ring lies above the ring formed when albumin is present, so in such cases one gets two rings.

The symptoms of uric acid gravel vary from being most marked and pointing definitely to the urinary tract to very doubtful ones. I only intend here to mention those symptoms which arise from the presence of uric acid crystals in the urine, and not those due to its excess or otherwise in the blood. In a typical attack lumbago-like pain in the kidney region extends down in front, along the course of the ureters, into the groin, accompanied by pain in and retraction of the testicles (in women pain in the ovary). This pain is accompanied by a frequent desire to pass water. There is inability to stretch down the legs, and the necessity of keeping them in a flexed position, with the feet towards the scrotum, and the knees thrown outwards. Great relief is here obtained by putting a pillow under the knee and bending the leg over it.

When gravel is impacted in a ureter pain may be intense, and the tenderness on pressure apt to be mistaken for peritonitis. The tenderness does not radiate so much over the abdomen. Vomiting frequently occurs, and when pain is very acute one may even have delirium. These symptoms are so closely allied to those of renal calculus, and as I am now only dealing with the smaller forms of uric acid gravel, I will now turn to the more indefinite ones.

In slight cases the lumbar pain may be expressed by the patient as merely a "tender feeling" over the loins, or it may be a heavy, dull pain which ceases on going to bed, to return on rising in the morning. This pain may diminish somewhat during the day, but never entirely goes away. It is aggravated each time the patient assumes a new position, and is often on that account mistaken for a lumbago.

The pain may radiate from the back in various directions, either towards the stomach or the shoulders, and even occasionally down the arms. I oftener find it in the legs, and have had it described to me as a sciatica, which it can as a rule be distinguished from by the course it takes being more towards the front than the back of the thigh.

In children, in mild cases, the presence of uric acid sand is often overlooked on account of the child never complaining of any actual pain. Such cases only are recognised by examination

of the urine on account of the child suffering from a frequent desire to micturate, which may be attended with sudden fruitless desires to go to stool, and a general restless nature. An ordinary examination of the urine often fails to discover anything abnormal about it. If, however, a fresh specimen of the morning urine is examined by means of the centrifuge, crystals are recognised and the case easily diagnosed.

The treatment of uric acid gravel takes two directions, according as we desire to increase the solubility or decrease the amount of uric acid formed. It is well to remember that, in the majority of cases, uric acid deposits are due to an increased tendency to precipitation, and not to excessive formation of uric acid.

In cases due to an increased tendency to precipitation, we have to give drugs which help to hold uric acid in solution. In spite of the recent outcry against piperazin, I must say I have found it of great service, particularly in all cases in which gravel has been due to diminished solvents and not excessive formation of uric acid. In fact it appears to me to have no action whatsoever on the quantity of uric acid daily formed in the organism, but merely on its solubility. On this account I always give it in such cases in combination with alkalies, either in the shape of alkaline waters or potash bicarbonate combined with iodides. It is as well to remember that, as the urine is naturally most acid at night and early morning, and therefore most likely to deposit uric acid, we can get over this by following Sir William Roberts's advice, and give the alkalines at bedtime. The diet in these cases is not of so much importance except in favour of salines and vegetables.

In cases, again, when the uric acid deposit is due to excessive formation, a carbohydrate diet is the most useful. Starch, sugar, and vegetables should, therefore, be the staple diet, and meat and fish only in small amounts. The old idea that sugar causes an increase of uric acid has no foundation, as I found in a series of experiments performed on myself when I took as much as a quarter or even a pound of sugar a day without causing any noticeable increase in the uric acid passed. Alcohol, on the other hand, should be prohibited, as it causes an increase in the quantity of uric acid voided.

Quinine and arsenic decrease the quantity of uric acid because they diminish the quantity of leucocytes, and therefore in cases where gravel is due to an excessive formation of uric acid they are most valuable. While moderate muscular exercise is of service, excessive exercise is, on the other hand, harmful.

In cases of excessive formation, although alkalies are of some assistance, they, like piperazin, are only of secondary importance by increasing the solubility of the uric acid formed.—*British Medical Journal*, March 23, 1895, p. 637.

42.—ON SUPPRESSION OF URINE IN DIPHTHERIA.

By E. W. GOODALL, M.D., Medical Superintendent Eastern Fever Hospital.

[Dr. Goodall—after detailing six cases as examples of the class of case in which anuria occurs, selected from the notes of many others—makes the following remarks :]

The condition is a common one, yet it is curious that the text-books say little or nothing about it. As far as I know, my former colleague, Dr. G. G. Morrice, was the first definitely to draw attention to the suppression of urine in diphtheria. There are certain points common to the cases detailed. They were all severe cases, with much local affection. There was albuminuria and more or less complete anuria. In the fatal cases there was frequent vomiting, and death was due to cardiac failure. This combination of symptoms is common in diphtheria. Some time ago I analysed the notes of thirty cases coming under my notice during the years 1892 and 1893, in which anuria was present in a marked degree. All these cases save three were fatal.

Anuria may be partial or complete. In 7 of the 30 cases there was total suppression of urine for from eighteen to nearly seventy hours before death; while in 12 others suppression was nearly complete for from twenty-four to seventy-two hours. Sometimes the excretion of urine is suddenly arrested; at others the period of total or nearly total suppression is preceded by one of gradual diminution in the amount excreted. In all cases there is albumen, often in large amount. The urine is of normal appearance, and rarely is there any sediment. Blood is never present. I have known anuria to set in as early as the third, and as late as the tenth, day of the disease.

Vomiting is often present, and was observed in 23 of the 30 cases. In 15 instances the vomiting was frequent. In 7 of these 15 cases vomiting set in simultaneously with anuria, before it in 4 (one to three days before), after it in 4 (two to four days after). The vomiting is quite independent of the taking of food. Only occasionally is there diarrhoea, but constipation is common.

Symptoms of cardiac failure are nearly always present from the time when the suppression of urine commences. The radial pulse is soft and small, and the cardiac sounds are faint. These symptoms are usually of gradual onset. The pulse at the wrist becomes more and more imperceptible to the touch and may be quite indistinguishable for some hours before death. The pulse-rate may during the same time become lowered; in seven instances it fell to below normal, the lowest rate observed being 44 per minute; but absolute infrequency of pulse-rate is not a constant feature of these cases, though there is often relative

infrequency compared with the rate observed earlier in the course of the disease. Irregularity of cardiac rhythm is occasionally met with.

Death occurs often by sudden cardiac failure; in 7 of the 30 cases it was immediately preceded by convulsions. At other times death is by slowly progressive cardiac failure. The patient's extremities become markedly cold and his skin and lips pallid; his temperature falls below normal; he is drowsy, but can easily be roused, though he resents being disturbed. In these cases the end comes with such quietness that it is difficult to tell the exact moment of death. The fatal termination occurs most often on the seventh, eighth, or ninth day of the disease. In the thirty cases the extremes were the sixth and seventeenth day.

There is usually much local exudation upon the fauces. In 23 of the 30 cases there was evidence also of nasal diphtheria. The local exudation may entirely disappear before suppression of urine sets it. Even in cases where the exudation persists serious constitutional symptoms may not show themselves until the onset of anuria. To the inexperienced observer the patient may, in those cases where the membrane clears off and there is little if any vomiting, seem to be improving, and I have more than once had to warn a patient's relatives of the fallaciousness of appearances.

Post-mortem appearances.—In fatal cases of diphtherial anuria there are only two constant conditions observed at the necropsy, and they seem to be of little importance. The one is marked pallor of the skin and lips, the other a contracted and empty bladder. The kidneys are usually normal in every respect to the naked eye. Now and then they are paler than usual; very occasionally the cortex is slightly increased in width. In cases where the membrane has cleared off from the fauces before death there may be absolutely no morbid condition to demonstrate post-mortem the nature of the disease.

What is the cause of these symptoms? The vomiting and pallor, taken in connection with the albuminuria and scantiness of urine, suggest uræmia. Certainly anuria is enough to account for uræmia. What, then, is the cause of the anuria? It is stated by Dr. Morrice that in the cases I am discussing the kidneys are found to be in a state of acute nephritis, and to this condition he evidently attributes the suppression of urine. He is supported in his view of the matter by the fact that certain other writers on diphtheria also speak of nephritis. There is, however, much divergence of statement even as to facts. Now, clinically, these cases of diphtherial anuria differ widely from cases of acute nephritis. In acute nephritis hæmaturia, dropsy, pyrexia, convulsions (occurring during the course of the attack,

and not merely just before death), and coma are common; in the anuria of diphtheria these symptoms are never met with. In nephritis there is usually recovery at the end of several weeks, or a chronic nephritis may result, and even in fatal cases death occurs after an illness of some duration, whereas in diphtherial anuria the usual termination is in death within a few days or even hours, and, in the cases which recover, recovery is always complete. In order to emphasise the difference between acute nephritis and diphtherial anuria I may mention that I have five times seen acute nephritis complicate an attack of diphtheria, and in these five cases the symptoms of the renal lesions were precisely the same as are seen in nephritis after scarlet fever. Lastly, treatment, such as is of great value in nephritis, is of absolutely no use whatever in the suppression of diphtheria. Clinically, therefore, diphtherial anuria is very different from acute nephritis. The evidence derived from the bedside is supported by that gained in the deadhouse. As I have already stated, to the naked eye the kidneys appear to be normal. With the microscope, also, little is to be found amiss. What changes are seen are variable and slight, and I would suggest that they are secondary to the greatly diminished flow of urine through the organs. The anuria is not, therefore, dependent upon nephritis. It is too marked to be due to either the vomiting (which is not always present) or the cardiac failure. I confess to being ignorant of its exact cause, and can only suggest that it may be due to the direct action of the poison (or poisons) of diphtheria upon the nervous mechanism that governs the excretion of urine.—*The Lancet*, February 2, 1895, p. 269.

43.—THE NERVOUS SYMPTOMS OF PATIENTS SUFFERING FROM CHRONIC URETHRITIS.

By R. K. MACALESTER, M.D., New York.

The nervous disorders that are often connected with chronic urethritis may be classed under the acquired functional nervous diseases, although they may sometimes attain such a degree of severity as to resemble the psychoses, and often lead us to consider them as something more serious than mere functional disturbances. They present certain characteristics and peculiarities, which, in connection with the underlying disorder, form, on the whole, quite a typical group of symptoms.

It is a well-established fact that irritation and disease of the genito-urinary organs are frequently the cause of manifold nervous disturbances, familiar to all practitioners, who, however,

often fail to recognise the connection. Beard, in his classical work on neurasthenia, writes: "Disorders of the genital apparatus are continually exciting disease in remote organs. In men a little prostatitis, or urethral or preputial irritation, not only phimosis, but even elongation, with secretion of smegma, are constantly the sole and demonstrable origin of hypochondriasis, dyspepsia, and other nervous symptoms." Furthermore, I have but to allude to the nervous disorders coexisting with or following sexual excesses, masturbation, interrupted coitus, operations, or manipulations on the urethra, etc. Therefore it is not surprising that a person, knowing that he has a gleet, should succumb to some nervous malady, the more so when, by allowing his mind to constantly dwell upon this fact, it should become a source of worry and all kinds of imaginary troubles. Indeed, the nervous disturbances may progress to such an extent and prominence as to become the predominant feature of the case, and the urethral disease is overlooked or regarded as one of the imaginary troubles. This latter is to be all the more regretted, inasmuch as when the true nature of the disease is recognised, the sufferer may either be completely cured by an appropriate treatment, or at least greatly improved.

Considering how many sufferers from chronic urethritis are afflicted with nervous disorders, it would seem reasonable to attribute to the former an important part in the etiology of the latter. Whether the urethritis, *per se*, is the causative factor, or whether it is the mental effect of this, is difficult to determine, for there are many men suffering from gleet for years who are entirely free from any nervous disturbances until they become aware of its existence. The knowledge of this immediately brings on the nervous prostration. In my estimation the psychical factor is the more powerful of the two. On the other hand, there are men afflicted with chronic urethritis and neurasthenia, notwithstanding their ignorance of the former's existence. But if we consider how wide-spread both of these diseases are, it is not surprising that we should find both of them co-existing independently in the same individual. Nobody will deny that many of our more enlightened city inhabitants are neurasthenic, and nobody who will take the trouble to inspect the urine of his male patients will fail to be convinced of the frequency of chronic urethritis.

All authors agree in attributing to genito-urinary disorders a more or less important part in the etiology of neurasthenia. Beard considers involuntary emissions, partial or complete impotence, and irritability of the prostatic urethra as mere accompanying symptoms of increased irritability. But one must be rather sceptical in regard to such conditions, for, as

I have observed, they, as well as many others, generally turn out to be the manifestations, or consequences of chronic urethritis which is the primary cause.

Finally, we have the question before us: Does chronic urethritis invariably give rise to nervous manifestations? No, I think not. I have seen men (in Europe) with normal nervous systems, who showed no evidence of neurotic disorders notwithstanding the knowledge and long duration of a chronic urethritis. Therefore it is necessary to recur to a third etiological factor, viz., a neuropathic constitution or predisposition. Dana, under neurasthenia, puts it in a very plausible way. He refers to prostatic and urethral disorders as reflex causes of neurasthenia, but presupposes a neuropathic constitution. My own observations go to corroborate this view, to which I would, however, add the psychological factor, viz., the patient's knowledge of the urethral disease, which factor is, in my opinion, the most active. Thus, the important etiological factors of the cases under consideration are: the neuropathic constitution or predisposition as predisposing, the chronic urethritis, and the patient's knowledge of its existence, as exciting causes.

In the symptomatology of all cases of neurasthenia connected with chronic urethritis, there is a great multiplicity and diversity of the manifestations in one sense, but in the other a striking monotony. Common to them all are the more localised nervous symptoms, directly referable to the genito-urinary apparatus, which clearly point to these parts as the seat of the disease, causing the bearer no end of worry, anxiety, and discomfort, and giving the hypochondriacal tone so prominent in these cases.

The symptoms of *Case 1* are a little above the average degree of severity, though they are of every-day occurrence. The patient was a healthy, steady-going, reliable, and thrifty artist previous to the onset of his gleet, but afterwards he was almost entirely incapacitated for any mental or physical work, unreliable, changeable, and more or less an invalid.

Case 2 shows to what extent the neurotic disturbances may progress. Here we have a perfect mental and physical wreck before us, with marked hypochondriacal symptoms and a tone of melancholia. It will be remembered that this patient had a neuropathic constitution, to begin with, and had practised masturbation for several years, which factors must not be neglected in accounting for the severity of the case.

Case 3, presenting no neuropathic history and being a negro—the male sex of which race, I believe, is not so much inclined to functional nervous disorders—it is not surprising that his symptoms should be of a milder type and the course a more favourable one.

From these considerations it would appear that the severity of the neuropathic manifestations depended upon the power of resistance of the bearer's nervous system, which is the case in all functional nervous diseases.

The chief features of the cases under consideration may be summarised as follows:—A history of gonorrhœic infection. Symptoms of general cerebro-spinal neurasthenia. Nervous disturbances directly referable to the genito-urinary apparatus. Prominence of the hypochondriacal symptoms, and a tendency to melancholia.

The prognosis of the milder and average types of neurasthenia is, as in neurasthenia from other causes, favourable; even more so, for here the seat of the trouble can be reached, which, if cured, and the physical factor being, also, thereby removed, the patient will generally make a complete recovery. If the neurotic trouble is more deeply seated and of a degenerative type, and there are other factors concurring with the urethral disorder (such as a neuropathic constitution, the consciousness of masturbation, or other previous or present vices), then their prospects of complete recovery are doubtful, although the patient may greatly improve. The troubles arising directly from the urethral affection will disappear under appropriate treatment; the other neurotic disturbances may also improve markedly, and the patient be benefited in every sense; but his morbid thoughts and imagination will take a fresh direction, new fears, worries, troubles, etc., will develop, and he will probably remain a neurasthenic subject, if nothing worse, for the rest of his days.

The plan of treatment of the chronic urethritis has been described in the foregoing, and some stress laid upon it, because the favourable results observed in Dr. Finger's clinic, and in my own experience, prompt me to consider it a great advance in modern science.

In the milder cases of nervous disorders, nothing more than general directions in regard to hygiene, diet, and mode of living are required. In severer cases it is advisable to resort to some sedative remedies, for the treatment of the chronic urethritis, especially in the beginning, often aggravates the nervous troubles for a while. Then the bromides are very serviceable: *Natr. bromid.*, 1·0 in the evening, or, if necessary, 0·75 t.i.d. Static electricity, or general faradization, applied cautiously, are useful if the patient can "stand it." It is also advisable to prescribe tonics, alone, or in combination with anti-dyspeptic remedies, if in any way indicated. The following improvement of the patient's nutrition and colour, in connection with the progress achieved in the treatment of the urethral disorder, will add greatly to the psychological effect of the "cure," endowing the

sufferer with more courage and hope. This latter factor is of no minor importance, for his perseverance in continuing the treatment depends in a great extent upon an appreciable improvement. Furthermore, the mental training of the patient is imperative; he must follow out the prescribed directions implicitly, and be prevailed upon to entirely change his mode of life. An appreciation of the subsequent improvement will be more than sufficient to deter him from falling back into his former habits.

Last, but not least, the physician must show much kindness, consideration, patience, and interest for the sufferer. This class of patients like nothing better than to be carefully and repeatedly examined, assured that there is no grave disorder, and that they are progressing satisfactorily. They always feel grateful for such attentions at the hands of the doctor, and even if the effect be but psychical and momentary, it is, nevertheless, deserving of being practised.—*Medical Record*, December 1, 1894, p. 684.

Surgery.

GENERAL SURGERY AND THERAPEUTICS.

44.—THE TREATMENT OF ANEURISMS OF ARTERIES OF THE EXTREMITIES BY EXTIRPATION OF THE SAC.

By H. LITTLEWOOD, F.R.C.S., Senior Assistant Surgeon to the
Leeds General Infirmary.

The subject I am about to consider is the treatment of aneurisms affecting the arteries of the extremities. The treatment I carried out in the two cases recorded in this paper takes the reader back at least a hundred years, when an operation of a somewhat similar kind was successful in the hands of an Italian surgeon named Guattani; but since the introduction of the Hunterian operation in 1785 it has not been often repeated. The personality of Hunter being very dominant, the principle of his operation (whether by actually tying or by pressure, either digital or mechanically) was looked upon as an almost final development of perfection, so that the older methods have been scarcely considered in the light of anæsthetics and aseptic surgery. I will now give the notes of the two cases and will then state my reasons for adopting this particular plan of treatment.

Case 1.—A man 40 years of age was admitted to the Leeds General Infirmary on July 5, 1893, under the care of Dr. Barrs. He complained of pain of the right upper extremity, some swelling above the shoulder, and of cough. He had aneurism in the upper part of the thorax either of the arch of the aorta or the innominate artery, and another in the left femoral artery. The patient was transferred to Mr. Atkinson. I took charge of the case soon after this as Mr. Atkinson was going away. As regards history, the patient had always been a healthy man. His father died from "a stroke." There was no other family history of importance, nor was there a history of syphilis or gout. The patient had suffered from rheumatism. He had taken beer freely, but not spirits. Twenty-six years ago he

had some necrosis about the right ankle and wrist. Concerning the present illness, eighteen months previously he had pain at the back of the right shoulder ; twelve months before he noticed a swelling above the inner end of the right collar-bone ; and nine months previously the pain in the shoulder was replaced by a tingling down the arm, this being very marked in the arm-pit. During all this time he had a troublesome cough. Three months previously (in June, 1893) he noticed "a small swelling in the middle of the left thigh" ; it varied in size, but had gradually increased, causing some pain in walking, but not of a marked character. The patient was a fairly healthy-looking man, and was well nourished. As stated above, there was an aneurism in the upper part of the thorax, either of the arch of the aorta or the innominate. The arteries of the upper extremity appeared to be healthy. In the left thigh, about four inches below Poupart's ligament, in the line of the femoral artery, a pulsating swelling about the size of a lemon was seen ; no thrill could be felt ; the swelling was painful and tender ; on auscultation a systolic bruit could be heard. Pressure on the artery above stopped the pulsation, and the swelling diminished in size. The pulsation in the popliteals was synchronous and equal. The tibials were not easily felt. There was a good deal of wasting of the right lower extremities. Some hypertrophy of the heart was present, but no bruit. The urine was of sp. gr. 1015 ; it was acid, and contained no albumen or sugar. On July 28 the patient was removed to another ward, and during the night the aneurism of the femoral artery became diffuse. He was seized with severe pain in the region of the femoral aneurism, which greatly increased in size and became very tender. The whole of the left lower extremity became swollen and painful, the pain shooting down to the foot. Morphia was given hypodermically. On July 29 he was lying quite still on his back without any severe pain. There was discolouration of the upper two-thirds of the thigh, obviously due to effused blood. There was no fever. The tongue was furred and the patient was constipated. From the time of the aneurism becoming diffuse the patient gradually got much worse. The thigh increased in circumference, the skin over the swelling became more discoloured, vesicles appeared over the surface, and it looked as if it might slough. There was some pyrexia, the temperature sometimes reaching 102° F. On August 18 the patient had two or three attacks of hemorrhage from the bowel. On August 22 his condition was much worse ; the buccal mucous membrane was covered with patches of thrush. He appeared to become worse daily, and he was delirious on August 27 and 28. All this time he was kept under morphia owing to the severe pain. On August 30 his

general condition commenced to improve, and did so until September 9th, when the operation was performed. In the morning of the day of the operation the maximum circumference of the limb was $22\frac{1}{2}$ inches. Pulsation was easily seen on the outer side, but was less marked on the inner aspect. The shape of the swelling was almost globular, the most prominent part looking upwards and inwards. The skin over it was much discoloured, there were a great number of blebs on the surface, and it appeared over the most prominent portion as if it would slough. The limb was a little flexed, and rotated out at the hip and flexed at the knee-joint. There was considerable œdema of the whole limb; the foot was rather cold and very white. No pulsation could be felt in either the tibials or the popliteal of this side. On September 9 the following operation was performed:—Ether having been administered, and the parts thoroughly cleansed, Lister's abdominal tourniquet was fixed in position. An incision was made, commencing about the mid-point of Poupart's ligament, and continued over the swelling for about the upper five-sixths of the thigh, the upper part was deepened until the sheath of the common femoral was exposed, and the artery was ligatured in two places about one inch from Poupart's ligament and divided between the two ligatures. A transverse incision about six inches in length at right angles to the first incision was made over the most prominent part of the swelling in the direction directly inwards. The skin was now dissected off; the sartorius muscle, which extended over the aneurism, was divided about two inches from its origin, and the part corresponding to the swelling removed. The internal saphenous vein, which was thrombosed, was removed for the same extent. The anterior crural nerve was found adherent to the sac at its anterior and outer aspect. This was carefully dissected off. At first an attempt was made to dissect out the sac intact, but this was soon found to be impossible. An opening was therefore made into it, and a mass of clot rapidly turned out. The true sac, with a large rent in it, was soon exposed, and was found to be filled with arterial blood, the coagulum limiting it on the inner side. The artery was now ligatured above and below the sac with silk, and the sac with these portions of the vessel dissected out. All the clot was carefully removed and washed out, and as much of the adventitious sac as could be got away. This was chiefly at the anterior part, the muscles bounding the clot at other parts. The clot weighed four pounds. The skin incisions were stitched up, and the cavity was lightly packed with gauze and iodoform. The patient stood the operation remarkably well. Nothing was seen of the vein or the profunda artery; the latter was probably given off from the part of the

vessel between the aneurism and the point of ligature of the common femoral. The patient made a good recovery. The wound was dressed every day and freshly packed. There was some suppuration and a small portion of the skin of the upper and inner flap sloughed. Morphia was given every night until October 1. On October 17 the skin over the heel was discoloured and a slough formed about the size of half-a-crown. On November 18 the patient left the infirmary. The wound was nearly healed, as was also the sore on the heel. There was very little cedema of the limb, and he moved the leg with comparative ease. Since leaving the infirmary, nearly twelve months ago, he has practically had no trouble with the limb. The thoracic aneurism appears *in statu quo*.

Case 2.—A man 63 years of age (kindly sent to me by Mr. Booth, of Great Grimsby) was admitted to the Leeds Infirmary on August 14 last, complaining of pain and a swelling in the right popliteal space. About twenty years previously the patient fell some ten feet with the right leg doubled under him. The knee was painful, but it did not prevent his working, and he appeared to get well in a month. Since then he had had some stiffness in that joint and pains at times. Ten weeks previously to admission to the infirmary he was pulling some heavy weights—fish-boxes—along a granite pavement when he fell, experiencing a sudden pain at the back of the right knee. He finished his work with difficulty, but on sitting down the part became still more painful. He could not sleep owing to the pain, but he continued to work for five weeks. A day or two after the injury he noticed a swelling of the leg and ankle and a small hard lump at the back of the knee. He had been six weeks at home, remaining in bed most of the time and entirely confined to bed during the last four days. On admission to the infirmary there was a rounded and somewhat diffuse swelling about the size of half an orange, filling the popliteal space chiefly above the transverse line of flexure. The skin over it was discoloured owing to extravasation of blood. Pulsation could be seen and felt in it; this was synchronous with the pulsation in the left popliteal. Pressure on the femoral arrested pulsation. Below the knee the tactile sensibility was diminished, especially on the outer side of the leg and foot; there was also some cedema of the leg. The circumferential measurements were as follows:—Upper border of patella—right, $17\frac{1}{4}$ in.; left, $14\frac{1}{4}$ in. Lower border of patella—right, $14\frac{1}{2}$ in.; left, $13\frac{1}{2}$ in. Three inches above patella—right, $15\frac{1}{4}$ in.; left, $14\frac{1}{4}$ in. There was some effusion of fluid into the left knee. On August 25 I performed the following operation:—The patient was placed in a prone position with the chest slightly raised. Chloroform having been administered, Petit's tourniquet

was applied to the femoral artery. After the parts had been cleansed an incision was made over the whole course of the right popliteal artery. A thick fascia was exposed and the sac soon reached. Lying on this the bifurcation of the sciatic nerve was seen. The two nerves were carefully separated from the sac and protected. The sac was opened, and eight ounces of dark clot were turned out. The popliteal vein was in the wall of the sac on the inner and under aspects. An opening was now seen in the popliteal artery about an inch in length and half the circumference in width. The opening was on a level with the middle of the condyles of the femur. Directly opposite to it was a pyramidal piece of bone, the base of which was attached to the inner and posterior surface of the external condyle of the femur; the rounded apex corresponded to the opening of the artery. This piece of bone was situated beneath the posterior ligament of the joint. The artery was ligatured above and below the aperture, and the part between the ligatures removed. All bleeding points were tied, and as much of the sac as could be was removed. The remainder of the clot was washed out. The wound was now stitched with silkworm gut and a large drainage-tube inserted. The operation lasted one hour. As soon as the tourniquet was removed the circulation of the foot was restored. On August 27 the patient was quite comfortable. The pulse was good and the temperature normal. At 7 p.m. the wound was dressed; it looked well; there was a large quantity of sero-sanguineous discharge. The drainage-tube was removed, and a smaller one inserted. On August 30 the wound was again dressed; there was not much discharge. On September 3 the stitches and drainage-tube were removed. On October 8 the wound was quite healed, and the patient was up for the first time since the operation. From this date to October 27 he was up every day, and on the latter date left the infirmary. There was some impairment of sensation on the back of the leg. I received a letter from Mr. Booth on November 1, in which he said: "I have just examined the leg and find the scar quite firm; the movements of the knee-joint are as free as they have been for some years. He can now walk without a stick for a short distance.

Of the etiology of Case 1 I have no very definite ideas; the coats of the artery in the specimen removed looked fairly healthy to the naked eye. In case 2 the pyramidal piece of bone certainly played an important part; the constant friction must have led to a thinning of the coats, bulging, and finally a rupture. My best thanks are due to Mr. Walter Thompson, the resident surgical officer, for his valuable assistance at the operations, and to those members of the resident staff who attended to the after-treatment of the cases and from whose

notes the reports have been taken. For some time I have felt that the plan of treatment employed in the above cases is the most rational and scientific. In February, 1891, I had a case of traumatic aneurism of the ulnar artery, which I successfully treated by completely dissecting out the sac, after having first tied the vessel above and below. This led me to think of the subject, and the advisability of adopting the same treatment in aneurisms other than those of traumatic origin. An important argument adduced in favour of the Hunterian operation is that the vessel is less likely to be diseased in a part at a distance from than near the aneurism, and so the chances of secondary hemorrhage are diminished. But is this the case? I believe that the surgeon cannot predict that because an artery is diseased in one part there will be any less disease in another part. And, even if this is not the case, is secondary hemorrhage such a common occurrence nowadays as to become a serious factor for our consideration? I have seen many thighs amputated for senile gangrene of the foot and leg in which the vessels were very extensively diseased at the point of ligature, and have never yet seen secondary hemorrhage following these operations. I believe that non-sterilised ligatures have more to do with such accidents as secondary hemorrhage than diseased vessels. My contention then is that it is quite as safe to ligature a vessel near the aneurism as at a part more remote, and if that is correct there will not be much additional risk in dissecting it out and so making a radical cure of it; for sometimes, after the Hunterian operation, the pulsation returns or the aneurism either bursts or suppurates. The risks of gangrene cannot be greater after the extirpation of the sac, and in the treatment of popliteal aneurism I think that risk will be diminished, for the anastomotica magna would at once carry a good stream to the leg. I cannot give any definite statistics as to the mortality of the Hunterian operation, nor the percentage number of cases of gangrene, return of pulsation, &c., following it, but every hospital of any size has records of such occurrences. A German named Kubler has collected 40 cases of aneurism treated by extirpation of the sac, and of these 39 were successful. The aneurism was nontraumatic in 11 cases. The two cases I have recorded are examples of diffuse aneurism, and these are certainly always the most serious cases. Erichsen says of such: "In many of these cases the only resource left to the surgeon is to amputate the limb." In conclusion, I would urge this method in the treatment of diffuse aneurisms of the arteries of the limbs, and I venture to think it will meet with favour on the part of many surgeons as the best method of treating aneurisms of these arteries before they become diffuse.

—*The Lancet*, November 17, 1894, p. 1143.

45.—ON INFANTILE SCURVY IN SURGICAL PRACTICE.

By HOWARD MARSH, F.R.C.S., Surgeon to St. Bartholomew's Hospital.

The following, so far as I have seen, are the surgical affections between which and infantile scurvy diagnosis may be at fault:—

(1) *Fracture of the Femur*.—A male infant, aged 13 months, was reported to have fracture of the left femur, for which a long splint had been applied. A large bruise on the hip was regarded as evidence, along with suddenly developed and severe pain in the thigh, that the nurse had let the child fall. There was, however, no fracture, but the child, as indicated by its pale and waxy appearance and spongy gums, was evidently the subject of scurvy. A considerable firm swelling, such as might result from the presence of callus, surrounded the lower end of the femur. This swelling was no doubt produced in the manner described by Dr. Barlow. It was due to the osseous material which had been thrown out by the periosteum after that membrane had been raised by hemorrhage between it and the shaft of the bone, and was “analogous to what is found round the base of a recovering cephalhæmatoma.” Although the diagnosis of fracture in this case was erroneous, it must not be forgotten that spontaneous fracture of the shafts of the long bones, though it is rare, is yet one of the most striking results of infantile scurvy. In a very remarkable instance recorded by Dr. Colcott Fox, several of the long bones presented one or more fractures through their shafts. The preparations from this well-known case are in the museum of the Westminster Hospital. Fracture depends on the weakening of the shaft as the result of hemorrhage into the medullary canal, and the consequent rarefaction or excavation of the bony tissue. In Dr. Colcott Fox's case the bones looked as if they had been “broken up by being run over.” This form of fracture, involving the shaft of a long bone, must not be confounded with the separation of the epiphyses, which is much more frequently seen.

(2) *Infantile Paralysis*.—A child, 11 months old, was believed to have severe infantile paralysis. Both the lower limbs were so powerless that when the patient was held up they dangled as if completely paralysed. When the child was in bed they remained motionless in a flexed and abducted position. This condition had been suddenly developed about a week previously. The patient was easy when at rest, but when the limbs were moved he screamed with pain. He was pale and cachectic, and had had free nose bleeding twice in the previous fortnight. On

examination there was found considerable swelling around both femoral and one tibia, the result of subperiosteal hemorrhage.

(3) *Sarcoma of the Femur*.—A child, 18 months old, was suddenly attacked with severe pain in the right thigh. A surgeon who was called in diagnosed a periosteal sarcoma, which he believed must have been growing for some weeks, but had been overlooked. The view was also formed that the sudden pain and the development of swelling were due to injury, perhaps producing fracture through the growth accompanied by hemorrhage into its substance. Two days later, however, examination brought out the following conclusive evidences of infantile scurvy: spongy condition of the gums, multiple “bruises” under the skin, and hemorrhage under periosteum of the opposite femur and of both tibiæ.

(4) *Sarcoma of the Eyeball*.—An infant, 9 months old, had what was regarded as a malignant growth, producing marked proptosis, a condition which it was feared would necessitate extirpation of the globe, and the removal of any growth that might be found at the back of the orbit. On examination, however, all the structures of the eye were found to be normal; and, on widely separating the lids, extravasated blood was to be seen behind the conjunctiva, indicating that hemorrhage had occurred into the orbit behind the globe in the manner described by Dr. Barlow. The child was pale and waxy in appearance, and had a “black eye” on the opposite side, of which the mother could give no account; while a week before she had been alarmed to find a considerable amount of blood upon the pillow, which she thought had come from the child’s throat. The patient was markedly rickety. No teeth had come through, and the gums were free from spongy swelling. In a second case of proptosis and subconjunctival hemorrhage in an infant in whom new growth was at first suspected, the opinion formed by Dr. Wyatt, of Clapton, that the case was one of infantile scurvy, was confirmed by the result; for under treatment the patient, as in the preceding case, rapidly and completely recovered.

(5) *Sarcoma of the Gums*.—Mr. Pick gives me permission to refer to a remarkable instance of infantile scurvy, chiefly involving the gums, which he related in his College lectures of the present year. The case occurred some years ago, and before the publications of Dr. Cheadle and Dr. Barlow on the subject. The patient, a male infant aged about 12 months, was suffering from an illness the exact nature of which was obscure. He was so anæmic and emaciated that he appeared to be dying. “The most remarkable feature in the case was the appearance of the child’s mouth. Dark red firm masses, evidently projecting from the gums, protruded from the mouth between the lips. These

were very vascular, and bled freely when touched. The firmness and vascularity of the growth rather suggested that it might be a case of sarcoma, but the child was in such an extremely exhausted condition that no protracted examination could be made. Nothing in the way of operative interference could be undertaken, and only palliative measures were suggested. The subsequent history of the case, which, as it is now easy to see, was one of infantile scurvy, is well worthy of being recorded. That same afternoon the mother by chance left a bunch of grapes on the child's bed. The patient ate one with evident relish; and as it was thought that he was dying, and the grapes therefore could do him no harm, and as he took them with avidity, he was allowed to suck several others. Next day he was better, and his mother, convinced that the improvement was due to the grapes, continued the treatment. The child now began to take food, and soon completely recovered. Heubner alludes to a similar condition of the gums, and remarks that in some cases hemorrhagic tumours of the gums are so large that they hang out of the mouth.

Should the symptoms which are observed, and which will all be found in Dr. Barlow's lecture, raise the suspicion that the case is one of infantile scurvy, an inquiry as to the diet which has been employed will throw valuable light upon the diagnosis. If it is found that the infant is being fed at the breast, or is taking a good amount of fresh cow's milk, the suspicion of scurvy is, in all probability, indeed almost certainly, erroneous. But if proprietary foods have been exclusively or even largely used, the probability that the child has scurvy will become very strong. The effect produced by the administration of an appropriate diet is very striking. In a single day, in some instances, improvement can be observed, and in the course of three or four days the child is obviously well on the road towards convalescence, so that all doubt as to the nature of the illness is at an end.

A case which came under notice in the course of the present year seemed to indicate that infantile scurvy may lead to the development of angular curvature of the spine. In the instance referred to, a child aged 10 months, who had apparently been suffering with scurvy for nearly twelve weeks, was extremely weak and cachectic. Under the periosteum of both femora and both tibiæ very large hemorrhages had occurred. The lower third of the right thigh was, as the result, so much swollen that it appeared at first sight to be occupied by a large sarcomatous growth. There was considerable swelling of the right leg, and swelling also, though much more limited, of the left thigh and leg. On examining the spine, there was found a very distinct angular curvature low down in the dorsal region. This had

appeared in the course of the illness, though at what precise date was not known. The patient died a few days later, but no post-mortem examination was obtained. It is therefore impossible to be sure on what the angular curvature depended. It seems, however, not improbable that it was the result of changes going on in the body of one or more of the vertebræ. In the long bones it is well known that the hemorrhage which collects beneath and widely separates the periosteum takes place mainly from the rapidly-growing tissue of the diaphysis, which lies beneath the epiphysial cartilage. This was very clearly stated by Mr. Pick in his lecture at the College of Surgeons. He says "the growing tissue at the ends of the shafts of the long bones is in most cases the principal, as well as the primary, seat of extravasation of blood in scurvy rickets in infants and quite young children." This vascular tissue is often entirely broken down, with the result that the epiphysis is completely detached from the shaft. It seems reasonable to believe that hemorrhage may have occurred into the cancellous tissue of the body of a vertebra immediately beneath one of the epiphysial plates, and have broken up the bone tissue in a manner similar to that just described as occurring in the ends of the long bones.

It would appear that surgical interference can very seldom be either necessary or advisable in the treatment of infantile scurvy. It is true the periosteum is often widely separated from the bones by a large quantity of extravasated blood. To some it may seem right that this should be at once removed by free incision and irrigation, or other means. Such a proceeding was, indeed, undertaken in an extreme case by Mr. Herbert Page, and the patient recovered. As a rule, however, to which there are probably very few exceptions, no operative treatment should be adopted; for, when the diet of the patient is corrected in the manner described by Dr. Barlow, the lesions produced by infantile scurvy are repaired with a rapidity which leaves nothing to be desired. In many cases in which the epiphysis has become separated from the shaft it has, as recovery under a corrected diet advanced, become reattached, and complete reunion has occurred.—*The British Medical Journal*, December 1, 1894, p. 1229.

46.—THE CONDITIONS OF CURE IN CANCER.

By HERBERT SNOW, M.D., Lond., Surgeon to the
Cancer Hospital, Brompton.

Rodent cancer or rodent ulcer is the "least cancerous of cancers," as showing in its tardiest and mildest degree the "progressive tendency to death," and as being totally devoid of auto-infective phenomena in the shape of metastatic deposits.

Though sometimes loosely used, the term correctly denotes only cancer of the short hair follicles, which is generally found in or near the lower eyelid, microscopically consisting in an aberrant reproduction of hair-follicle structure. As there are no secondary offshoots, the lesion is readily extirpated by knife or caustic within the first eighteen months or two years of inception. At a later stage cure is impeded by the proximity of numerous bony structures covered by periosteum, a tissue speedily prone to malignant infiltration of any kind. Next ranks Epithelioma, the cancer of the epithelial cells, coating, skin, or mucous membrane, clinically differentiated from Carcinoma, the cancer of secreting glands, by the important point that the metastatic particles are arrested by the adjacent lymph glands and only very rarely reach the bloodstream. Hence radical extirpation is effected by the removal of all the dangerous glands near simultaneously with that of the primary lesion, provided that this removal takes place before the relatively late stage of enlargement. For practical purposes three stages of growth in secondarily implicated lymph glands must be insisted on : (1) one of insidious deposit not recognisable by any symptom ; (2) one of tenderness on pressure without enlargement ; (3) one of increase in bulk. Each of these occupies at least a fortnight, often more. The track of infection along lymph glands is always definite and susceptible of accurate prediction ; the fact of infection having taken place must always be assumed after the lapse of a certain time, varying with the site. To wait till glands enlarge before proceeding to their excision is usually to sacrifice the patient's life, as by that time still more distant organs of the lymphatic system will have reached the preceding stages. Thus, in epithelioma of the lips the "infection path" lies through the submaxillary lymph glands situated at the anterior edge of the salivary gland similarly named ; and on an average, secondary deposit takes place here within six months, frequently sooner. Hence it is rarely permissible to extirpate a labial cancer without synchronous dissection out of these latter, whether enlarged or not. The 38 per cent. of cures ascribed by a popular author, on the faith of German statistics, to a simple V-incision without attention to these glands is, in my opinion, vitiated by the obvious inclusion of non-malignant cases in the figures cited. On the other hand, in the Tongue the infection extends with far greater rapidity, always within six weeks, often in half that time. The dangerous glands are also the submaxillary in cancer of the anterior two-thirds : in cancer of the posterior regions, the cervical, just behind the angle of the lower jaw. The following cases exemplify the principles of treatment ; it is not thought necessary to cite any affecting the lips or integument.

In the rectum and uterus operative surgery can, of course, deal only with the primary lesion. Malignant disease of the former organ (Cylindroma) fortunately develops slowly and seldom infects lymph glands or liver for a twelvemonth from inception. Hence free excision within that period should suffice. It is a general rule that malignant tumours growing without hindrance from a free surface are less prone to infect the glands than those bound down by dense fibrous tissue, such as the familiar breast scirrhus. Cancer of the uterine cervix (usually carcinoma, less often epithelioma) must be dealt with within eight weeks; otherwise recurrence will quickly ensue by way of the lymphatic plexus in the vaginal submucosa. Supravaginal amputation is the treatment; as the disease to the last often advances no higher than the internal os, and as the "infection path" lies in the direction indicated, hysterectomy should be reserved for late cases, and for disease within the uterine cavity. In that of rapidly recurring carcinoma, high up in the cervical canal, diagnosed within six weeks, and extirpated by escharotics, the patient still remains well.

With malignant developments of the connective tissues (true sarcoma) a distinct series of clinical phenomena is encountered. There is here no infection of adjoining glands, per the lymphatics; if any such not in contact with the tumour are found diseased this is a sign of diffusion by the blood, and is associated with metastases also in the viscera. To eradicate, removal must therefore take place before cell particles have passed into the blood current. Sarcomata of the long bones should be treated by amputation at the proximal articulation; in consequence of the receptive qualities of their marrow, and its intimate association with the circulation current, the operative surgery thereof, which has hitherto generally neglected this precaution, offers far less favourable results than of the short or flat bones. Within the mamma and elsewhere connective tissue growths are commonly intra-cystic or encapsuled, a fact which tends greatly to delay the advent of blood infection.

Melanotic cancer of the skin, being now shown to be a product of the Malpighian pigmented epithelium, "anticipatory" removal of the neighbouring lymph glands is demanded exactly as in ordinary epithelioma. We have next to consider that local malady which for generations has most strongly coloured the universal conceptions of "cancer." Carcinoma of the mamma furnishes all those obstacles to surgical eradication which we meet with in carcinomatous or analogous lesions elsewhere, with one of very grave significance peculiar to itself—viz., insidious marrow infection. The disease invariably begins in a minute tissue area, in a single acinus—it may be, in a single

cell—following always the operation of some definite exciting cause. In 11·5 per cent. this is mechanical violence ; a blow often serves to indicate the precise date of inception. In the remaining 88·5 per cent. mental trouble is the most potent excitant, producing aberrations in the normal devolution of the organ, carcinoma being only one of several lesions due to interference with this process. The mamma undergoes evolution between the ages of fourteen and twenty-five ; for the next ten years temporary involution ensues upon pregnancy, a process of development followed by a resting stage, which is copied in slighter degree by the phenomena of each menstrual period. The devolution or stage of permanent degeneracy commences about the age of thirty-five, and is the epoch affected by carcinoma almost exclusively. Infection of the lymph glands in the adjacent axilla by the last-named takes place early ; it is rarely delayed beyond eight weeks, occasional exceptions being presented by—(1) scirrhus growths within the dense fibrous structures of the nipple, which are exceptionally chronic ; (2) “atrophic” cases in withered mammæ ; (3) carcinomata at the sternal border, which tend first to infect the thymus by lymphatics perforating the chest wall. When enlargement of the auxiliary glands takes place the normal lymph-current is unable to pursue its ordinary course, and regurgitation takes place in abnormal directions. Thus particles pass, on the one hand, into the marrow of the adjoining humerus (normally this bone is the earliest affected in the majority of instances), and, on the other hand, into the residual thymus, thus producing the condition denominated the “sternal symptom,” a progressive prominence of that bone between the second costa-sternal articulations, the most unmistakable evidence of marrow deposit. Implication of the marrow takes place simultaneously with palpable enlargement of the axillary glands, which, as has been pointed out, is a relatively late stage of cell growth therein. Its occurrence must therefore be assumed in every average case of more than eight to twelve weeks’ duration, those “atrophic” growths which permit life for from twenty to thirty years constituting an exception. Marrow infection has been shown to occur in at least eight out of every ten instances of mammary scirrhus ; it necessarily leads eventually to the passage of cell-particles into the circulation, with metastases in the viscera. After excision of the mamma at a later period than eight to twelve weeks the symptoms become manifest after a variable period of years, rarely exceeding five. In order to surgically eradicate a carcinomatous breast, therefore, an operation must take place within six to twelve weeks of inception, prior to lymph gland enlargement, and before the possible advent of marrow infection. And not

only must the tissues be very freely removed, with careful consideration of the exigencies in each individual case, but the axilla at the same time carefully cleared before the lymph glands have had time to enlarge. The old-fashioned text-book operation by two oval incisions passing close to the palpable lesion is necessarily followed by "recurrence" in the cicatrix within a few weeks or months at the outside; the modern methods of procedure rarely fail to secure absence of visible deposit for at least two years, even in what must be considered advanced cases of more than a twelvemonth's duration, complete success being then precluded by the previously established marrow condition.—*The Lancet*, January 12, 1895, p. 84.

47.—NON-TUBERCULOUS DISEASES OF JOINTS.

By ARTHUR J. GILLETTE, M.D., St. Paul, Minn.

There are a number of diseases manifested in or about the joint so often resembling tuberculosis that it is quite difficult to distinguish them, yet the pathology and treatment differ so widely that to treat them scientifically they must be differentiated. To enumerate a few of them—rheumatic arthritis, gonorrhœal arthritis, septic joints, Charcot's disease of the joints, typhoid joints, rhachitic joints, epiphysitis, neuromimetic or hysterical joints, hæmophilic, loose bodies in joints, bursitis, synovial hernia, traumatic joints, incised wounds of joints, simple synovitis with effusion, dry synovitis, suppurative synovitis, gouty joints, tumours of joints, syphilitic joints, scorbutic joints, &c.

Rheumatic arthritis is a disease of the joints characterised by chronic inflammatory and degenerative changes involving the structure of the various articulations and resulting in rigidity and deformity. Of course, our assistance in distinguishing this is in the history and multiplicity of joints involved; but who knows better than the general practitioner how little dependence can be placed on the histories given, and we sometimes find more than one joint involved in tuberculosis, though, happily for the patient, this does not often occur.

Septic joints may come from long-continued suppuration in any portion of the body; they resemble, and in fact can not easily be distinguished from, tuberculous joints, for it is well known that tuberculous joints often follow closely in the wake of exhausting diseases. Any septic micro-organisms which have gained entrance into the body might readily and often do implant themselves in a joint, occurring without any history of local injury.

It has been long known that Charcot's disease of the joints is sometimes with difficulty distinguished from other joint disease; in fact, can only be distinguished by establishing a positive diagnosis of *tabes dorsalis*. This certainly is very difficult, especially in the early stage, and by the lack of spasm of the muscles about the joint, which spasm is often lacking in the very early stage of tuberculous disease of the joint.

Of late a great deal has been written upon typhoid joint diseases and typhoid spine, a condition following typhoid fever, characterised by acute pains upon the slightest movement and the absence of any marked febrile disturbance, which have been known to go on to suppuration and death, and the only bacilli found was the supposed *bacillus* of typhoid fever. As before stated, tuberculosis of joints may follow these diseases, yet how can they be distinguished?

Rhachitic joints, as a rule, are not hard to differentiate, as we usually have the general rhachitic condition to guide us. You may have the two associated or you may have, as I once saw, only one bone in the body showing rhachitic changes. Take, for instance, a rhachitic posterior curvature of the spine: you will observe quite an acute posterior angular curvature of the spine, irritability, and sleeplessness of the patient. If seen early, about the only distinguishing point in any way positive in the rhachitic spine is that, instead of being rigid as in caries, it is very supple.

Epiphysitis, acute or suppurative, but non-tuberculous, if seen before the joint becomes involved, is easily recognised; this, however, occurs within a few days, and occurring in childhood has often been taken for tuberculosis of the joints.

Hæmophilic joint disease is quite difficult to recognise, as the hemorrhage is from the synovial membrane. The symptoms given by Howard Marsh are as follows: "While bleeding is already taking place elsewhere, or as the first event is a hemorrhagic attack, one of the joints (the knee is a convenient example) is found to be the seat of a suddenly developed enlargement, sometimes only amounting to a slight, puffy swelling, but often distinctly fluctuating, and evidently caused by fluid in the synovial cavity. There is little increase of heat, but the joint is often painful on movement and tender, as if affected with subacute rheumatism. Subsequently the swelling gradually subsides, and the joint may entirely recover, but in many cases puffiness and stiffness, varying in amount in different cases, remain, and are accompanied by frequently relapsing pain and tenderness, which prevent the patient from walking. In some instances the joints become more and more impaired by repeated hemorrhages and the inflammatory attacks to which they give rise."

Loose bodies in joints may occur without any trauma, such as masses of condensed fibrin pressed into shape, or connective tissue and fat, or a sort of albuminous material which seems to be a coagulation of the synovial fluid. Of course, the acute attack will help in the diagnosis, but, after repeated attacks of pain and locking of the joint, the patient is quite likely to get a chronic inflammation.

Bursitis, while not a common disease, is met with, the hip and knee probably being the only positions where it might be confused with true hip-joint disease or white swelling. About the hip, when the obturator internus bursa is inflamed, the tumour of the bursa here must be distinguished from a beginning abscess. One can readily understand how the joint would be more or less fixed by the spasm of the muscles. In the knee a large bursa may develop in the quadriceps tendon (the subquadricepital); this often opens into the joint.

In traumatic joints, where it runs a chronic course, it is very difficult to differentiate from a true tuberculous disease of the joint, for we well know how often a tuberculous joint disease dates from an injury. We know, too, that in tuberculous diseases of the joints there are two great classes pathologically, one which begins in the soft parts and the other in the bone, resembling two forms of traumatic synovitis—synovitis with effusion and dry synovitis.

Dry synovitis is a disease which rarely attacks any joint but the knee, and often occurs in rheumatic patients. How difficult to distinguish from tuberculous joint beginning in the bone!—*New York Medical Journal*, February 2, 1895, p. 129.

48.—ON THE DIAGNOSIS OF ACUTE JOINT TUBERCULOSIS.

By A. G. MILLAR, M.D., F.R.C.S.E., Lecturer on Clinical Surgery; Surgeon to the Edinburgh Royal Infirmary.

1. Acute tubercular arthritis may follow an injury, an operation elsewhere, or it may be one of several manifestations in a case of general tuberculosis. Lastly, a previously existing chronic affection may become acute. Of the first cause I have seen several examples. The injury was usually somewhat severe. It is easy to imagine how a synovitis, produced by a strain, may, in a tubercular subject, give rise to an acute tuberculosis of the joint; and how quickly all the tissues concerned in the injury, the synovial membrane, the ligaments, and even the bones, may become involved, and the joint rapidly and hopelessly disorganised. Of the second cause, all surgeons unfortunately see many

examples. After an operation (say excision of glands or of a joint) general tuberculosis arises from dissemination of the tubercle bacillus; various parts of the body may become affected, and a joint may be one of these. When a patient becomes affected in this way, the symptoms closely resemble septic infection. There has been an operation; there is a sudden rise of temperature, and other symptoms of acute inflammation; a joint is swollen and evidently acutely inflamed. There has evidently been absorption from the freshly-cut surface. Has septic material been introduced, or is it the pre-existing tubercle that has given rise to the new acute inflammation? The answer to this question must be decided mainly by the condition of the operation wound, and by the characteristics of the new joint affection. One or more joints may be affected in a case of general tuberculosis occurring without an operation. In such a case the resemblance to acute rheumatism may be striking, and the diagnosis uncertain for a day or two. I have seen some examples, I believe, of acute tuberculosis of a joint which has apparently become ingrafted on a rheumatic synovitis. Again, I have seen acute tuberculosis appear in a joint that had previously been affected with chronic disease. In such a case the cause is usually an injury, and the result a rapid and extensive destruction of the joint.

2. From the personal and family history much help may sometimes be obtained. In a tubercular case there may be a history of family proclivity to tubercle, or there may be evidence of a tubercular affection in some other part of the body. Sometimes, however, the patient is well, though probably delicate, until the receipt of an injury, or the occurrence of a chill. In such cases the diagnosis is not so easy. In a septic case there is a septic cause—a wound or a septic discharge. In a rheumatic case there may be a history of rheumatism. Age is no assistance. All the various affections may occur at almost any period of life.

3. With regard to the mode of onset little need be said. The advent is usually sudden. The septic form is probably the least painful, while the rheumatic is certainly the most painful, and is much worse at night. Effusion into the synovial cavity takes place rapidly in all, but least in the tubercular. In the rheumatic there is a dusky redness over the joint, which is usually flexed.

4. The condition of the temperature is interesting and important. In the tubercular affection the temperature is pretty high—102° or so. It goes up rapidly, varies somewhat (two degrees or thereabouts), and is highest usually in the afternoon rather than at night (the hectic type). In the septic joint affection the temperature is high, sometimes very high; but its

main peculiarity is the varying difference between morning and evening—generally three or four degrees (the pyæmic type). Again, in rheumatic synovitis, the temperature runs up to a very high point, progressively, and tends to remain high (the inflammatory type).

5. Sweating, again, is an interesting and peculiar symptom, though not always so characteristic or reliable as the temperature. In tubercle the sweating is again of a hectic type, occurring after sleep and at night, and associated with prostration—patient feels weaker after sweating. In septic cases the sweating is apt to occur mainly after rigors. In rheumatic cases the sweat has the peculiar acid character that is supposed to be pathognomonic. Prostration and emaciation are marked in both the tubercular and the septic varieties of joint affections—less so in the rheumatic.

6. We now come to a symptom that is very characteristic and of great diagnostic value in tubercular affections—viz., muscular atrophy, which is rapid in its progress, and affects the whole limb, but especially the extensors of the diseased joint. We meet with nothing like this in the other affections; there is wasting, but it is general and not so rapid.

7. The next point that I have laid down is the number of joints affected. The implication of several joints is very characteristic, and almost pathognomonic of rheumatism; but the tubercular and septic joint affections may be multiple also. The implication of several joints, then, is not a reliable symptom, but when it occurs it points generally in the direction of rheumatism.

8. We now come to a characteristic of tubercular joint disease that is somewhat similar to what we find in the septic, but never (in my experience) in the rheumatic joint affection—viz., involvement of all tissues. At first there is evidence of fluid in the synovial cavity. (This is sero-purulent and flaky.) Then the ligaments become softened and stretched, and lateral or other abnormal movement is possible. Within a few days there is osteitis affecting the articular surfaces, with separation of cartilage, and grating when the joint is moved laterally. In short, the joint may be completely destroyed in a fortnight or three weeks. In acute rheumatism the synovitis remains a synovitis as a rule. I have seen the ligaments involved; indeed, they generally are, if the inflammation be permitted to run on unchecked. I have also seen the bone and cartilage affected when the disease has become chronic; but I have never seen the joint rapidly disorganised, as it is generally in the tubercular affection. The septic joint stands, as it were, between the rheumatic and tubercular in the above particulars. It begins as effusion into the synovial membrane (probably

purulent). It may go on to complete destruction of the joint (but this is not so common as in tuberculosis), or it may recover perfectly.

9. The tubercular joint contains the thin, flaky, sero-purulent fluid characteristic of tubercle. This may be removed by aspiration, but will certainly re-accumulate, and that rapidly. I believe that it never is perfectly absorbed. On the other hand, the septic joint effusion, although it is certainly purulent, is capable of absorption, and may not recur after removal. The rheumatic effusion is very readily absorbed—especially under proper treatment, as we shall see.

Having now gone over the various diagnostic points, I would like to say a word in regard to treatment. Acute tuberculosis should be treated, if possible, by amputation, because it obstinately runs on to the utter destruction of the joint, and of the patient also, if left alone. I say “if possible,” because when the hip and shoulder are affected amputation may be too severe a procedure, and excision may be the safer treatment. At the same time, I must say that, in my experience, excision is not generally satisfactory. The tubercle bacilli seem to be infiltrated beyond the limits of removal by any ordinary operation for excision. In the septic joint, if absorption do not occur under carbolic fomentations, incision and drainage is usually the best and most satisfactory treatment, with passive movement afterwards, to prevent ankylosis. The treatment of rheumatic synovitis that I have found most satisfactory has been thorough soaking of the joint in a towel saturated with a strong solution of soda. I have seen a rheumatic effusion disappear under this application in twenty-four hours; and I look upon the action of this remedy as being as important, from a diagnostic point of view, as the administration of potassium iodide in syphilis.—*Edinburgh Medical Journal, February, 1895, p. 694.*

49.—THE TREATMENT OF IMPACTED FRACTURE OF THE NECK OF THE FEMUR.

By F. A. SOUTHAM, F.R.C.S., Surgeon to the Manchester Royal Infirmary.

The treatment usually adopted in cases of impacted extra-capsular fracture of the neck of the femur consists in simply keeping the leg at rest, without making any attempt to overcome the characteristic deformity—viz., the shortening and eversion of the limb, always present in a greater or less degree. As might be expected, the result in most cases is very

unsatisfactory, for the leg remains permanently more or less shortened and everted. Erichsen says :—"In consequence of the impaction the limb cannot be restored by traction to its proper length, and hence incurable lameness always results from this injury. . . . Nothing can be done to diminish the deformity. . . . The patient remains throughout life more or less crippled." During the past two years three instances illustrating the serious after-effects of this injury have come under my notice, the limb being left in the condition just described. With a view to preventing, if possible, this result in a case recently under my care in the Manchester Royal Infirmary, the impaction was at once broken down under anæsthesia, and, the eversion and shortening by this means having been overcome, the fracture was then treated in the ordinary way, extension being maintained by means of a weight attached to the leg, a long straight splint being applied to the outside of the limb. The consequence was that the fracture readily united with the limb in the corrected position, no deformity remaining.

The following are the details of the case. The patient, a male aged 27 years, was admitted to hospital on July 2, 1894, suffering from the effects of a fall on the right hip a few hours previously, and presenting all the signs of an impacted extra-capsular fracture of the neck of the femur. There was well-marked eversion of the limb, which was shortened to the extent of nearly an inch. The trochanter was less prominent than its fellow, but increased in breadth in an antero-posterior direction. No crepitus could be detected ; the limb could not be restored by traction to its normal length, and attempts to overcome the eversion caused great pain and proved unsuccessful. On making steady traction upon the limb, without using any great amount of force, after the patient had been anæsthetised, the impaction was felt to give way with a distinct grating sensation, and it was then found that the eversion could be easily overcome and the limb restored to its normal length. Extension was at once applied in the ordinary way by means of a weight, commencing with 9 lb. and gradually increasing to 22 lb., any tendency to eversion being prevented by a Liston's splint on the outside of the limb. On July 31 the extension apparatus and splint were removed, and the limb was put up in a plaster of Paris bandage. On August 3 the patient left the hospital. On September 10 the plaster bandage was taken off at home, and two days subsequently the patient came on crutches to the ward to show himself. On examining the leg, upon which he was able to bear his weight, it was found to be of the same length as the other. The movements of the hip joint were quite free, and he could flex the thigh to a right angle. There was no eversion of the

limb, the patient being able to rotate the leg inwards and rest the sole of the foot upon the dorsum of its fellow. There was considerable thickening about the great trochanter owing to the presence of an abundant formation of callus. On October 22 the patient had given up the use of his crutches, and walked without any lameness. The thickening about the trochanter had quite disappeared, and except that the hip was slightly flattened as compared with the opposite side, it was difficult to detect any traces of the injury.

I am aware that the plan of treatment carried out in this case is somewhat unorthodox, and quite at variance with the teaching of the different text-books on surgery, as there is a traditional dread of union not taking place in this variety of fracture if the fragments are separated by breaking down the impaction. In Holmes's "System of Surgery" it is stated that "in impacted fractures of the cervix forcible extension of the limb, with the view of restoring it to the same length as the other, must not be attempted, or the fragments may be unlocked, and thus placed in a less favourable condition for union." The satisfactory result obtained in the case described above, by breaking down the impaction to a sufficient extent to allow of the deformity being corrected, would, however, lead me to again adopt this treatment under similar circumstances, provided that the patient was of good constitution and not advanced in years. —*The Lancet*, November 17, 1894, p. 1151.

50.—ON FRACTURE OF THE FEMUR IMMEDIATELY ABOVE THE CONDYLES.

By HOWARD MARSH, F.R.C.S., Surgeon to St. Bartholomew's Hospital.

This fracture, which traverses the lower end of the femur in an oblique direction downwards and forwards, and terminates just above the articular surface of the condyles, may be produced either by a fall upon the feet or more commonly by a fall on the knee. In some instances of fracture just above the condyles the quadriceps is not injured, either because the force applied, though it breaks the bone, is insufficient to drive the fragments through the tendon, or because the fracture is produced by a fall on the foot when the limb is extended. In this position the upper fragment and the quadriceps tendon are parallel with each other. When, however, the fracture is caused by the direct application of force to the condyles, as in a fall on the knee when the limb is flexed, the quadriceps is in a tense

condition, and the fragment impinges upon it almost at a right angle. Thus circumstanced, it can hardly escape perforation. The main features of the fracture are:—(1) Transfixion by the upper fragment of some part of the great tendinous and muscular hood formed by the quadriceps where it passes over the lower end of the femur to be inserted mainly into the upper border and sides of the patella. According to the position of the limb at the time, this transfixion will be in the middle line, or on either side—more often on the inner. (2) Transfixion or laceration of the suprapatellar pouch of the synovial membrane, so that the knee-joint is directly involved. It leads to acute arthritis, which may end in ankylosis. (3) The tilting backwards by the gastrocnemius and other muscles, of the upper end of the lower fragment into the popliteal space. The amount to which this takes place varies in different cases. In some it is slight, while in others it is considerable. In dealing with this displacement when it is marked, Bryant has divided the tendo Achillis so as to relax the gastrocnemius—a proceeding which Morris, of Harvard, quoted by Hamilton, found very serviceable. A study of museum specimens, shows, however, that this tilting of the lower fragment is as a rule less than might be expected. The real difficulty depends on the protrusion of the upper fragment through the quadriceps, so that more or less of this structure intervenes between the broken surfaces. To get the end of the bone out of a buttonhole slit in so strong a tendon as that which the quadriceps forms an inch or two above the patella, and when the only means of doing so consists of extension, applied almost at a right angle to the axis of the fragment, seems a nearly hopeless task. If extension fails, as probably it will, the best procedure would seem to be at once to expose the quadriceps, and enlarge the opening through which the bone protrudes, in a longitudinal direction, or, if necessary, transversely also; and when the fragment has been disengaged, to close the wound in the tendon by buried sutures. In some cases it might be necessary to remove the protruding end of the bone. The operation necessary for disengaging the upper fragment would probably involve free opening of the knee-joint, but this, at the present day, would not contra-indicate its performance, although it would demand the strictest aseptic procedure.

In the treatment of fractures in the vicinity of the knee-joint, the double-inclined plane has found favour with some surgeons. But in the experience of the majority, as certainly in my own, it has been disappointing. The patient finds it uncomfortable, and it is untrustworthy as a means of keeping the fracture at rest. The best apparatus probably is a long Liston's outside splint, with a shelf behind, upon which the

limb, for some distance above and below the fracture, may firmly rest. If the fracture is compound, or if an operation has been performed, the splint should be interrupted opposite the fracture. This can be conveniently done by cutting out the necessary length, and refixing it with a well-made hinge at one end and a firm sliding bolt at the other, so that it opens and shuts like a door.

When it is found that the variety of fracture under discussion has completely failed to unite, notwithstanding the best adjustment that could be secured, combined with a sufficient period of rest, the treatment to be adopted is a subject for careful consideration. The primary cause of non-union is the transfixion of the tendon by the upper fragment. This has two effects. It not only introduces a substantial layer either of tendon or muscle between the fragments, but—usually, at least—it prevents the descent of the lower fragment. Under these circumstances, and as the limb is useless, can operative measures be adopted with safety and with a good, or even a fair, prospect of success? Every surgeon who has dealt with an ununited fracture in a deep wound will appreciate the difference between the difficulties of the operation and the ease of understanding it all when the parts are displayed in a skilfully-prepared museum specimen. Whether in any particular case an attempt should be made to procure union must turn largely on the patient concerned. If the patient is well past middle life, the risk of the operation is probably—unless the local conditions prove to be very favourable—too great to justify its performance, especially when it is remembered that there is no guarantee that union can be secured. On the other hand, when the patient is well under 40 and the general health is sound, a persevering effort ought to be made. The operation would now be much more difficult than when undertaken directly after the fracture has occurred, but it would be of much the same character, and need not therefore be separately described.—*The Practitioner*, January, 1895, p. 35.

NERVOUS SYSTEM.

51.—THE TREATMENT OF INJURIES OF THE SPINAL CORD.

By WILLIAM THORBURN, F.R.C.S., Assistant Surgeon
to the Manchester Royal Infirmary.

Speaking broadly, we may divide these injuries into various classes, which, for convenience of reference, I have placed under

eight headings :—(1) Unilateral dislocations ; (2) bilateral dislocations with persistent displacement ; (3) bilateral dislocations with recoil (diastases) ; (4) fracture of the bodies with persistent displacement ; (5) fracture of the bodies with recoil ; (6) fractures of the laminae, spinous processes, etc. ; (7) compound fractures ; (8) secondary lesions, as hemorrhage, meningitis, etc.

The vast majority of injuries fall into the second, third, fourth, or fifth class, that is, they are bilateral dislocations or fractures of the bodies of the vertebræ. Fractures and dislocations are constantly associated together, but for the present purpose the distinction between these two conditions is one of no importance, and we shall speak of true dislocations, pure fractures, and “fracture-dislocations” collectively, remembering that, in nearly all these cases, the upper segment of the vertebral column is displaced downwards and forwards, and the theca vertebralis is thus crushed between the body of the vertebra below and the arch of that above.

A very important practical distinction is, however, that which exists between cases in which the displacement is followed by recoil of the injured bones and those in which the displacement is a persistent one. In the first class the cord is crushed, and then at once released by Nature ; in the second it is crushed and continues to be compressed between bony surfaces. In the cervical region cases of recoil are commoner than those of persistent displacement in a proportion of about two to one. In the lumbar region my pathological material would indicate that persistent displacement is more common, but this material is a fallacious guide inasmuch as only the most severe lesions here lead to a necropsy. In the dorsal region my cases are too few to allow of any statistical deductions, but in every part of the vertebral column I have found both varieties of injury, that is, both recoil and persistent displacement.

Having said so much as to the pathology of these conditions we may now pass to the consideration of their treatment, and here we find four methods open to us : (1) Expectancy ; (2) reduction of displacements ; (3) laminectomy ; (4) fixation by plaster-of-paris or other form of support.

Symptomatic and expectant method :—Life may occasionally be indefinitely prolonged, even in cases which appear to be hopeless, as in the celebrated case of Hilton, whose patient lived for fourteen years with total paraplegia due to fracture of the fifth, sixth, and seventh cervical vertebræ ; and in the case of a woman with a fracture-dislocation of the third dorsal vertebra and total paralysis and anæsthesia below that level, who has now been under my observation for five years and a-half without material alteration in symptoms. Further, it is not rare to meet with examples of hæmatomyelia, due I believe to

slight crushing followed by recoil of the bones, in which, although the early symptoms are severe, these rapidly clear up, leaving us with a small localised lesion and very perfect recovery. Hence, it is not safe, in our enthusiasm for operation, to assign occasional good results to our treatment. The future of the patient will depend rather upon his having escaped with a small hemorrhage or upon the fact that serious secondary troubles have not ensued.

Reduction of displacements is applicable only to our first, second, and fourth groups of cases. In these it is unquestionably often possible to restore the contour of the bony spine by suitable manipulation, but it is more doubtful whether we can maintain the correct position or whether the more important lesion of the cord will be benefited thereby. In considering this point I must first speak separately of the unilateral dislocations.

In unilateral dislocation the conditions are the most favourable for reduction. In the first place we have the undisturbed articulation as a fulcrum from which to work; then again we have a greater probability that displacement will not recur; and, most important of all, the cord lesion is rarely so severe as in the antero-posterior displacements of the entire spine. I have succeeded in collecting from various sources 41 cases in which reduction of such a unilateral luxation was attempted, and in 35 of these the result was apparently successful, but in the majority there were no symptoms of any injury to the cord at all, and in none with which I am acquainted was there evidence of a complete crush. We must also not too hastily assume that when reduction was apparently successful it was really complete. Thus I reported in 1888 the case of a man who was admitted to hospital with a unilateral cervical luxation and serious cord injury, although the interruption of conduction was not complete. "Reduction" was effected with a distinct snap, and the man made a satisfactory recovery; but on his death three years later, from cancer of the liver, I found that the luxated articular process was not replaced, but that the vertebræ were held together by a firm fibrous tissue on the injured side. There can, however, hardly be a doubt that in these unilateral cervical cases the attempt to reduce should be made as soon as possible after the injury; it may succeed; it can do no harm; and the comparatively slight cord lesion renders the prognosis good.

Coming now to the more important cases of bilateral luxation I have but five personal observations, the cases having been under the care of several of my colleagues. Two of the injuries were in the cervical region, and attempts at reduction, under an anæsthetic, failed in both. Three were in the lower dorsal region, and in each of them the position of the spine was

apparently rectified, but in all the displacement returned in spite of fixation by plaster jackets. Analysis of published results is beset with difficulties, as many of the records are very meagre, and many leave upon our minds grave doubts both as to the diagnosis and the result of treatment. We must therefore lay no great stress upon the fact that in 50 cases which I have collected reduction was said to have been effected in 42; nor can we trace the ultimate results in these cases. From *a priori* considerations and from personal experience I should be inclined to say that reduction is not as a rule very difficult, but that displacement is almost certain to return. Obviously the perfect reduction of a pure dislocation would not be likely to be followed by subsequent slipping, but such a result is difficult, if not impossible, to obtain. In the commoner fractures, on the other hand, reposition is comparatively easy, but these are precisely the displacements which are liable to return.

Much more important, however, than the replacement of the spine is the relief of the spinal cord, and, from considerations which I shall present immediately, I fear that we cannot hope for any recovery in a cord which is crushed by such a displacement as I am speaking of, and I can find no satisfactory evidence that the reduction has ever cured or materially relieved the medullary symptoms. Hence I fear that we do not gain much positive benefit even by a successful reduction, save, perhaps, in injuries situated so low down that the cauda equina rather than the cord is the seat of constriction.

Lastly, we must not forget that in the cervical region these manipulations are dangerous, and that in injuries of the atlas and axis they are quite unjustifiable; also that in the upper and middle dorsal region the attachment of the ribs not only renders reducible displacements rare, but interferes with our proceedings.

On these grounds I should limit the useful sphere of manipulation to unilateral cervical dislocations and to bilateral displacements in the lower dorsal or lumbar region, and I should regard it not so much in the light of a radical treatment of the cord lesion, as of an advantage at a later date should recovery ensue.

Save in certain special conditions, to which I must refer directly, I do not believe that laminectomy is likely to be of any service in injuries of the spine and spinal cord. My argument is briefly this:—(1) Cases, the common cases, in which crush is followed by recoil clearly do not call for laminectomy. The lumen of the vertebral canal is already restored; the cord is in the most favourable position for repair, and there is no pressure to relieve by operation. (2) But these cases generally die, or at

least undergo no recovery of the functions of the cord. Hence in the cases of persistent displacement, in which the medullary injury is at least equally severe, we cannot expect recovery, even if we attain by surgery a result, the removal of pressure, which in the first case was provided by Nature. Especially is this the case as the surgical result must always be obtained at a later period than the natural result. (3) Such evidence as we possess indicates that the human cord is incapable of repair after crushing. Thus a study of wounds of the cord by sharp instruments shows, so far as we can judge, that the region actually cut does not regenerate. Again, after fractures, even if the patient survive, there is no evidence of regeneration of cord tissue. Also experiments on animals show that, at least in the adult mammalia, the cord is incapable of repair. Vicarious conduction may lead to restoration of function in such cases if some cord tissue be left undivided, but vicarious conduction is impossible in a complete crush. (4) I have not found, either in published records of some 200 cases, or in personal experience of 7, any clear evidence of benefit from the operation. Isolated cases of partial recovery after operation do not prove that such recovery was due to operation, as such isolated cases occur also among cases not submitted to treatment, and if such cases are to prove anything, there must be clear evidence that they were not examples of small hemorrhages, which would have done as well or better without laminectomy.

There are, however, certain conditions in which laminectomy is a valuable operation, and these we may summarise as follows:—(1) In compound fractures the ordinary “wound toilet”—removal of foreign bodies and fragments of bone—is clearly indicated. (2) In injuries of the laminae and spinous processes with lesion of the cord, there is probably no complete crush, but here we have bony fragments driven against the theca, liable to plough it up on every movement, and not liable to natural recoil. Here, then, operation is indicated, and to this group belong the highly successful cases of Péan and Schede. (3) When the symptoms are due mainly or entirely to thecal or perithecal hemorrhage pressing upon the cord we may relieve by laminectomy, but such cases are extremely rare; a good result is recorded by Wagner, and another by Church and Eisendrath. (4) Pachymeningitis or peripachymeningitis may follow an injury even after a very long period, one such case having been operated upon by myself in which symptoms commenced twenty years after the accident. In these cases operation is also of value, the condition being here that of slow compression of the cord, and not in any way analogous to a crush. (5) And lastly numerous cases, as well *a priori* consideration of the conditions, indicate that if the cauda

equina be compressed recovery will probably follow the relief of pressure by laminectomy.

If now I am right in limiting the value of the operation to these groups of cases, none of which are very common, it becomes a matter of the utmost importance to be able to diagnose the exact condition, but upon this wild and difficult field I cannot enter now.

The use of the plaster jacket as a means of fixation of the spine has been earnestly advocated by König, Berkeley Hill, and others, but its value can clearly be secondary only. As an adjunct to laminectomy, to reduction, or to spontaneous recovery, it is of the greatest value, and probably all surgeons will apply it after the first few weeks in a case which is otherwise doing well. Its use at an early stage is, however, more questionable, as it has the disadvantage of possibly causing pressure sores, and in cervical cases of embarrassing the respiration, whereas it can have no positive beneficial effect and can only prevent secondary displacements. Although, therefore, we must not forget that this is the most perfect means which we possess of preventing movement of the spine and thus allowing for consolidation of a case which is recovering, I should hesitate to use Sayre's corset at an early stage, unless the lesion were low down. Sufficient fixation can generally be obtained by the use of sheets, sandbags, and pillows.—*British Medical Journal*, October 27, 1894, p. 909.

ALIMENTARY CANAL.

52.—IS THE APPPOSITION OF PERITONEUM TO PERITONEUM A SURGICAL ERROR?

By J. GREIG SMITH, M.B., F.R.S.E., Surgeon to the
Bristol Royal Infirmary.

My first doubt of the principle of sero-serous apposition arose in connection with intestinal operations, and particularly with the means of providing intestinal drainage in cases of intestinal obstruction. Many of these operations had to be rapidly performed, and in some of them I dared to ignore the time-honoured habit of "shutting off the cavity" by suturing parietal peritoneum to bowel, and both to skin; often, indeed, I omitted to place sutures of any kind. The cavity was shut off just as well when the bowel was implanted on the raw surface.

But later on, when it came to the closure of the fistula or anus, I found this direct implantation of bowel to incision had its disadvantages, for the adhesions were so firm and so extensive, and so intimate, that it was not easy to separate them. The practical outcome of this has been that where I want temporary drainage with loose adhesions and mobile bowel—as in temporary enterostomy—I suture parietal peritoneum, bowel, and skin, but where I desire firm, permanent, and intimate adhesion, with no mobility of bowel on parietes—as in cœliocolostomy—I implant bowel directly on raw surface, and if this raw surface is small, as it is in thin subjects, I increase it by unfolding or peeling from the parietes more peritoneum, and turning its raw, not its serous, surface on to the bowel.

A few special or crucial incidents may be quoted. Some years ago I lost a case of cœliocolostomy, done in the usual way by sero-serous suturing, through the opened gut being dragged inside the abdominal cavity. I blamed an imperfect suturing of the parietal peritoneum to the gut and skin at the lower end of the wound, and expected that the post-mortem examination would show this to be the cause of the giving way. As it turned out, this was the only part that held firmly; everywhere else the adhesions had given way, wholly or partially; here they were strong and firm.

Three weeks after undergoing the operation of gastrostomy a patient died of bursting into the lung of an abscess connected with cancer of the gullet. For an inch all round the gastric opening parietal peritoneum was glued to gastric peritoneum by adhesions which were dense and opaque, but easily detached. The line of the fistula, where a tube of gastric wall lay implanted on the raw incised surface, could not be detached at all. By mistake the specimen was put into the macerating tub. At the end of a week, when the specimen was found, the sero-serous adhesions had melted away, but the fibro-serous adhesions between the stomach and the parietes were as firm as ever; the stomach seemed to be absolutely incorporated with the parietes. The specimen (now mounted in spirit in the Bristol Medical School) continues to show the close intimacy of the union.

Further evidence in favour of the strength and durability of sero-fibrous adhesion is supplied by the occurrence and persistence of adhesions when surfaces are left after operation uncovered by peritoneum. Adhesions between bowel and raw surface (such as the stump of a pedicle) may, as we know, be strong enough to cause obstruction. A recent hospital case, where I had to reopen the abdomen for obstruction a week after removal of the appendages for myoma, was a striking example of this. The intestinal wall

was positively incorporated with the surface of one of the ligated pedicles ; it was quite impossible to tear them apart ; it was necessary to cut away a piece of the stump to liberate the intestine. Such adhesions remain to give further trouble also.

Sero-serous adhesions, on the other hand, tend to disappear ; often they disappear very quickly. Another hospital case, in which I have performed no fewer than eight operations—four to relieve obstruction and four to close fistulæ—gave abundant opportunities for observation of the growth and disappearance of peritonitic adhesions. The case was a complicated one, with enormous distension, and hernia through the foramen of Winslow. There was prolonged evisceration of intestines during evacuation of their contents. At the end of a month the abdomen was reopened for recurrence of symptoms, and numerous close peritonitic adhesions were discovered. A fistula was now established. Twice the fistula was closed, and the symptoms recurred on each closure. A further thorough exploration of the abdomen showed that the old adhesions had disappeared, with the exception of a few thin threads easily torn through. The bowel implanted on the raw parietal wound, however, was always firmly fixed—too firmly. Indeed, as I have said, where loose and temporary fixation is desired, as in temporary drainage of intestines for obstruction, sero-serous apposition I now believe to be better than sero-fibrous.

These examples show by comparison on the same patient that at the end of days or weeks the adhesions between intact serous surfaces is not so strong nor so intimate as between serous and raw surfaces.

At the end of three months the same holds good, and of this I had a disagreeable experience with two colleagues a few weeks ago. Three months previously on this patient I had done an operation for fixing the colon—colopexy it may be called—to the left inguinal parietes. The colon at the operation was fixed over an inch by three silkworm gut sutures carried through the parietes, and forming part of the parietal sutures ; but the peritoneum was outfolded, and its raw surfaces laid on the gut. It was necessary to open the abdomen again, and we were startled to find how close and intimate had become the union of the colon to the parietes. The colon seemed to be buried in them, although muscles were not at all penetrated. It was as if the gut had acquired a new mesentery, firmer and stronger than the natural one.

These are examples of the union of serous to raw or incised surface, and perhaps they will serve their purpose as well as a greater number of examples culled from the ordinary routine of practice. Wherever possible this routine is made to involve the implantation of one raw surface on peritoneum. Thus in

hysterectomy by the extraperitoneal method the peritoneum is not attached by its serous surface to the serosa covering the pedicle, but the raw surface of the peritoneum is opened up and laid over the pedicle. In cholecystotomy the gall bladder is surrounded by the raw surface of the detached peritoneum not gathered in and sutured, but purposely opened up and spread out. It is easy enough, if it tends to remain open, to close the fistula without entering the general cavity. In colostomy by coeliotomy immovable fixation of the gut on the parietes, preventing both indrawing and prolapse is best got by direct implantation of the gut on the parietal incision, supplemented, if necessary, by outfolding of the detached peritoneum. And in every case where I desire to get rapid and strong fixation of hollow viscus, cyst or abscess wall, pedicle or solid growth to the abdominal parietes, I always now apply not serous to serous surface, but either serous to raw surface or raw to raw. The parietal peritoneum is either turned out so that its raw surface lies in contact with the serosa to be attached, or the serosa of the organ is peeled off, or both are done.

The apposition of a raw to a serous surface has thus far only been spoken of as being more perfect in its results than serous to serous. Raw to raw surface, while in my experience better than serous to serous, is probably not quite so good as raw to serous. My adoption of the junction of raw surfaces has been in the first place to avoid opening of the abdomen, but my appreciation of it has gone beyond this. I was first led to adopt the apposition of raw to raw surfaces in the healing of intestinal fistula after operations for intestinal obstruction, and for resection of intestinal growths and areas of gangrene. As I am responsible for the introduction of intestinal evacuation and drainage in obstruction, I have naturally become responsible for the healing of a considerable number of cases of intestinal fistula and artificial anus. This I now manage by an extraperitoneal operation made possible by detaching the parietal peritoneum for some distance around the fistula. The parietal peritoneum, still adherent to gut, being detached, the bowel with the peritoneum can easily be delivered through an incision traversing the cutaneous and muscular layers, and the opening, large or small, in the gut is closed by apposition of raw surfaces. The union is as good and as rapid as when serous surfaces are united. The details of this operation do not concern us now; I quote it simply to show that, in enterorrhaphy, closure of a fistula, or even of the whole circumference of the gut, sero-serous apposition is not essential. One prime advantage of sero-serous union is that it takes place very rapidly, that in a few hours it is water- and gas-tight. But such union is no more rapid than when peritoneum is apposed to a raw surface.

On the other hand, the primary lymph coagulum between serous and fibrous surfaces forms just as quickly, and having more points of attachment amongst the opened fibres, it holds more strongly. As it taps open connective tissue and is surrounded by plasma cells, vascularisation begins at once and goes on apace. At the end of two days sero-fibrous adhesions are stronger than sero-serous; at the end of a week sero-serous adhesions may still be peeled off with little bleeding; sero-fibrous can then scarcely be separated at all, and their separation causes free bleeding. If there is little to choose between the two as regards prevention of extravasation of fluids for the first few hours, the sero-fibrous has a decided advantage as time goes on. The lowly-organised, inert, and loosely coherent plug of lymph is easily disturbed and would be easily broken up in the presence of fluid. This we know to our cost; it is on the second or third day that leakage takes place. A sero-fibrous junction that lasts for a day is practically safe for ever, for it goes on improving in strength and solidity.

The practical application of these principles is as wide as abdominal surgery, and includes not only results to be encouraged, but results to be avoided. Where it is desired to secure quick, strong, and permanent union, sero-fibrous apposition is better than sero-serous. Where the union sought need not be strong and is desired to be only temporary, sero-serous apposition may be adopted. Fibro-fibrous apposition, while perhaps as good as sero-serous, is not in my experience so good as sero-fibrous. Sinister results which we seek to avoid arise when we leave raw surfaces to which intestines may adhere and cause obstruction. To cover such a surface by peritoneum would, according to published statistics, save nearly 2 per cent. of the deaths after abdominal operation.—*British Medical Journal*, January 5, 1895, p. 1.

53.—OPERATIVE TREATMENT OF PERFORATIVE ULCER OF THE STOMACH AND INTESTINES.

By A. PEARCE GOULD, M.S., F.R.C.S., Senior Assistant Surgeon
to Middlesex Hospital.

The simple, round, and so-called perforating ulcer of the stomach and duodenum is a somewhat common affection, whose true pathology is still wrapped in mystery. Not one of the suggestions as to its origin is satisfactory. But this much we know: it is particularly frequent in young anæmic women, especially of the servant class, and in middle-aged men. It is

nearly always single, although occasionally two, and even three, ulcers have been met with. The favourite seat is at or near the lesser curvature, especially on the posterior surface of the stomach, and near the pylorus; it is rarest of all near the greater curvature. The size is usually between that of a sixpence and a shilling, but may be much larger. In depth these ulcers vary: the floor may be only a thin layer of peritoneum, or the edge of the ulcer, if chronic, may be so hard and nodular as to be mistaken for a malignant infiltration; such an induration may extend over an area the size even of the palm of the hand.

The symptoms to which these ulcers give rise may be of the most marked character—agonising pain after food, exquisite tenderness, frequent vomiting, and occasional hæmatemesis and melæna. There may, however, be merely slight uneasiness after food, flatulence, and occasional vomiting; while, more terrible still, these ulcers may be so latent, so insidious, that the patient makes no complaint whatever, and is unaware of any departure from health. But the still more important fact for us to remember is that the symptoms form no sure guide either to the seat of the ulcer or to its liability to perforate the stomach wall.

In the great majority of instances the ulcers cicatrise. Welch tells us that recovery thus occurs in about 85 per cent. of all cases; in 6·5 per cent. death results from perforation; in 3 to 5 per cent. it is the direct result of hemorrhage; and in the remaining 4 or 5 per cent. exhaustion or pylephlebitis, or some other complication proves fatal.

Only 2 per cent. of the ulcers on the posterior surface of the stomach perforate, and only very rarely is this perforation into the general peritoneal cavity; more commonly the ulceration extends into the pancreas, and gives rise to abscess beneath the diaphragm, and often, also, to suppuration in the pleura and base of the lung, especially on the left side.

Of the less frequent ulcers on the anterior wall of the stomach as many as 85 per cent. perforate, and most often into the general peritoneal cavity, but as the most frequent seat of such anterior ulcers is that part of the stomach which is covered by the liver, it sometimes happens that the perforation is shut off by gastro-hepatic adhesions, and no escape of stomach contents occurs, or else a subphrenic abscess forms. It appears that young servant girls are particularly liable to ulceration of the anterior gastric wall. It is stated that ulcer of the duodenum is most frequent in men.

The perforation of a gastric ulcer into the general peritoneal cavity is nearly always—some have said invariably—fatal. Let us notice that death in such cases is occasionally due to the shock produced by the sudden escape of the stomach contents

into the peritoneal sac. More commonly, however, the shock is more or less completely recovered from, and death results from the peritonitis which ensues, the fatal issue being brought about partly by sapræmia, partly by nerve irritation, which together result in the well-known collapse of abdominal inflammation with the cold extremities, pinched features, failing heart, progressive cyanosis, and apparently (not really) unclouded senses.

For the shock, which in some cases is so marked a feature, surgical measures are of little avail. The external application of heat and the administration of opium by the mouth and morphine under the skin are probably the best means to employ. It is important to remember that this primary shock varies greatly in severity.

The measures that have been proposed and carried out for this condition are, first of all, simple washing out of the peritoneal sac and drainage, without any attempt to find or close the perforation. Secondly, suture of the ulcer, with or without excision of its edges, and thorough cleansing of the peritoneum. Thirdly, where suture of the ulcer is impossible, suture of the stomach to the parietal incision (the formation of a gastric fistula) or drainage of the stomach, combined with cleansing of the peritoneum.

To sum up, I would submit that success depends primarily upon the perfect cleansing of the fouled peritoneum, and that failure has been due most often to imperfect cleansing of the serous sac and continuance of the peritonitis, while other causes of failure are the shock of the operation in patients already suffering from sapræmia and abdominal shock, and recurrence of the escape of stomach contents.

Statistics show that perforation of the bowel occurs in from 2.5 to 3 per cent. of all cases of typhoid fever, and that it is the cause of nearly 20 per cent. of the deaths in this disease. The perforation is most often situated in the ileum, but it may be found in the vermiform appendix or the colon, and even in the jejunum, and "there are often more than one" (Cayley). The perforation may be so small as not to allow of escape of the intestinal contents, or so large that pints of matter may flow from the bowel into the peritoneal sac, occurring most often about the third week of the disease. Dr. Cayley states that he has known perforation to occur in several instances after the patient had got up and was doing well; he mentions two cases of this accident about the sixty-sixth day of the disease, and that Morin had cases in the seventy-second, seventy-sixth, and one hundred and tenth day. Perforation may occur in cases of the mildest description, but it is a mistake to say that it is chiefly met with in cases of "latent typhoid"—such cases are more striking, not more numerous.

The symptoms of the perforation may be very marked—sudden pain and distension of the abdomen, vomiting, rise of temperature and pulse, and all the signs of peritonitis; but they may be quite latent—only an increase in the prostration, with a distended motionless belly, so that the condition is not even suspected. Death may close the scene in ten minutes, and life is rarely prolonged beyond two days. Rare cases of recovery after this accident are to be found in medical literature.—*The British Medical Journal*, October 20, 1894, p. 859.

54.—ON THE SURGICAL TREATMENT OF CANCER OF THE PYLORUS.

By F. KAMMERER, M.D., NEW YORK.

Two operations have been adopted as justifiable ones for the relief of cancer of the pylorus—pylorectomy and gastro-enterostomy. Both of them have undergone many modifications since they were first presented to the profession. In pylorectomy, Billroth, whose experience was larger than that of any other surgeon, always united the cut edges of the stomach and duodenum, after partially closing the opening in the former, with a view to making the two apertures of equal size. His mortality with this operation was very great, over fifty per cent., which he attributes mainly to faulty technique in suturing. Owing to the difficulty of uniting two intestinal openings of unequal size, it has been proposed, more especially by Bull in this country, to close the stomach and duodenum and to do a gastro-enterostomy. It has been further proposed to close the stomach and to implant the duodenum into a fresh incision on its anterior, or, preferably, its posterior wall, and not long ago the very ingenious device known as Murphy's button has been called into requisition to accomplish this object. There can be little doubt that the implantation of the duodenum into the posterior wall of the stomach is the most rational manner of re-establishing the continuity of the intestinal canal. If, however, owing to extended resection, an approximation is impossible, gastro-enterostomy should be resorted to, after closing the divided ends of the viscera.

When the surgeon, after opening the abdomen, finds the removal of the neoplasm inadvisable, what course should he pursue? If his patient is generally in a fair condition, and symptoms of pyloric stenosis are well developed, then the case is one for some form of gastro-enterostomy. But I do not hesitate

to say that the surgeon should again close the abdomen and desist from the temptation of further operative interference when the symptoms just mentioned are absent or present only in a slight degree. I believe that far advanced cases, where cachexia is well marked, do not stand gastro-enterostomy well. When the retro-peritoneal glands are involved, and also other abdominal organs, such as the colon and liver, it is better to run the chance of the stenosis not becoming apparent before the patient has lived through the short remainder of his life, than to subject him to an operation which in his condition is critical. When the stenosis has been well marked before laparotomy, however, there will be no alternative but to do gastro-enterostomy, although the prognosis is, if anything, worse. I have myself lost three cases on from the third to the fifth day, in which a most careful post-mortem examination has failed to detect the slightest sign of leakage along the line of suture, or any traces of peritoneal infection. In two of them persistent vomiting set in immediately upon their recovery from narcosis, and lasted, despite all our efforts, until death. (I should like to mention in this connection that Hahn has lately recommended washing of the stomach in such cases, as early as twelve hours after operation. He claims that this manipulation is without danger, and that the vomiting will generally cease.) In the third, vomiting incident to narcosis ceased after a short time, but the patient died apparently of exhaustion. All these patients were very cachectic and anæmic, with well-marked stenosis. I cannot attribute their death to shock following operation, for they all rallied well from the effects of the latter, and were, in fact, in about a like condition at the close as at the beginning of the same. In two of them, some difficulty was experienced in bringing the loop of intestine to a suitable position on the anterior wall of the stomach, owing to cancerous infiltration of the latter, and some tension was present after completion of the anastomosis. This may have been sufficient, combined with the occasional discharge of bile and pancreatic juice into the stomach, to account for the persistent vomiting, which in patients of so low a grade of vitality may produce profound collapse and death. I do not, therefore, believe that cases of pronounced cachexia are favourable for this operation. Regarding the technique of the latter I have but little to say. I have always attached the loop of jejunum to the anterior wall of the stomach, bringing it over the transverse colon, the original operation of Wölffler. Some surgeons have observed intestinal colic and obstinate constipation after this method, and attribute the same to pressure of the loop upon the colon. It has, therefore, been suggested to pass the loop through a slit in the mesocolon, behind the transverse colon, and to attach it to the posterior

wall of the stomach. The latter procedure is more difficult, and has not been generally accepted, although special conditions, as infiltration of the anterior wall of the stomach, may necessitate its employment.

I have used Senn's plates, Abbe's rings, and the simple suture with silk, and prefer the latter. One of the first requisites of speedy union is uniform approximation of the peritoneal surfaces which are to become adherent, and to this object catgut rings, in my experience, do not so readily lend themselves. Senn's plates cannot be procured of sufficient size for a large opening between the two viscera, and such an opening is very essential to counteract the effect of contraction at the anastomosis. The best plan is, I believe, to make incisions, three or four inches long, and to suture, using a double row of peritoneal sutures on the posterior side at least. I should not employ Murphy's button in gastro-enterostomy, as it has always seemed to me that it might ultimately slip into the wider cavity, the stomach, with the same facility as into the small intestine, and a report of three such occurrences at a recent meeting of the New York Surgical Society has corroborated this opinion. Moreover, I do not regard the matter of saving fifteen minutes' time as one of any importance in gastro-enterostomy, although in some forms of intestinal obstruction a loss of fifteen minutes may prove fatal.

Progress in the treatment of cancer of the stomach will be made in the direction of pylorectomy. The conviction that early and very radical removal of cancerous tumours will vastly improve the results of operative interference has been much strengthened lately by the excellent work of Halsted on cancer of the breast. In the subject under discussion the difficulty lies in early diagnosis. We have heard how these difficulties may to a large extent be overcome; but still, occasionally, a case may baffle the diagnostic skill of the most expert. All who have experience in this kind of work will agree with me that careful examination, with or without narcosis, has often failed in detecting a tumour of considerable size, which laparotomy has readily revealed. If anywhere, an exploratory incision is certainly indicated here. Palpation of the upper abdomen does not yield results which are at all as reliable as those gained by simple or bimanual examination of the pelvis, where some have learned to feel even a normal appendix. If we, furthermore, remember that in about one-third of all the cases of cancer of the stomach which have been examined post-mortem no metastatic deposits and no adhesions were found, we should expect to meet with very favourable conditions for pylorectomy when early exploratory incision is practised.—*New York Medical Record*, February 2, 1895, p. 140.

55.—ON THE VARIOUS METHODS OF PERFORMING GASTROSTOMY.

By WILLY MEYER, M.D., Professor of Surgery in the
New York Post Graduate School.

[The following is the concluding portion of an able and exhaustive article on the treatment of stricture of the œsophagus :]

In reviewing the three operations advisable for gastrostomy—those, namely, of Von Häcker, Witzel, and Ssabanejew-Frank—with reference to the usefulness and indication of each, we must pay attention to the character of the stenosis.

(1) *Cicatricial*.—Here the gastric fistula must be temporarily established if regular sounding from the mouth or from an artificial œsophageal lip-fistula in the neck does not succeed, or succeeds only up to a certain degree of dilatation. This is especially experienced in treating long tubular strictures of the thoracic portion of the œsophagus. In such cases the surgeon performs gastrostomy:—(a) For retrograde blunt dilatation, which, if successful, is later substituted by sounding from above; (b) For the purpose of enabling him to strive for a radical cure, viz., to divide the stricture (internal œsophagotomy), and then stretch it with sounds.

The stricture can be cut with small knives on a string, pulled through from below (Lange), or with a straight urethrotome introduced from an œsophageal fistula in the neck, after careful disinfection of the stomach and of the portion of the œsophagus below the fistula in the neck (Willy Meyer), or with string (Abbe).

Internal œsophagotomy (cutting with a knife) is considered a dangerous operation up to the present date. This mainly on account of the surgeon's inability to properly disinfect the operating field; next on account of the danger of perforating the canal, injuring an adjacent vessel or nerve, &c., and setting up acute posterior mediastinitis. The first danger can be averted by carrying out the proposition made by me in 1892, viz., to add gastrostomy to external œsophagotomy. The safest radical method seems to be Abbe's operation—to relieve the œsophageal stricture by cutting with a string. It has to be proved yet, however, by a series of cases, that this method also properly and safely divides, with the hope of a permanent cure, a long tubular stricture of the thoracic portion. No doubt the two cases presented by Dr. Abbe to the New York Surgical Society will induce surgeons to try his procedure before all others in cases that need an operation.

But is there any way of avoiding the development of a marked cicatricial stenosis of the œsophagus, with its terrible suffering and sometimes incurable consequences for the patient?

In 1887 Maydl, of Vienna, proposed to perform in such cases gastrostomy as early as possible—very soon after the acid or caustic lye, &c., has been swallowed. In this way the food would not pass over the intra-oesophageal ulcerations—the continuous chemical and mechanical irritation would be avoided. Fluids might be swallowed; they would help to wash off the surface. Of course, cicatricial tissue would nevertheless be formed; there would also be the same tendency to its re-contraction; a stricture would form if matters were left to themselves. But by proper and “timely” sounding from below and above most probably can be avoided the narrow, twisted, often impermeable stricture which confronts the surgeon in almost every instance if no operation be performed. In view of the brilliant functional results obtained by Witzel’s method, Mikulicz has again taken up this idea. He believes that “it will be wisest in severe cases of burn of the oesophagus to establish a gastric fistula early, to protect the reparative process inside the canal against the disturbances caused by the passage of the food.” In his one case, where the elastic bougie did not pass any longer (for five days), swallowing became easier without help four weeks after the operation. Now a bougie cure, from above, was feasible and was successful. One month later semi-solid food passed with ease. The tube was removed from the stomach. The fistula closed spontaneously without further interference within sixteen days.

Which of the three operations shall be performed in such a case? Frank states that his operation is devised for carcinomatous strictures only. It would require a troublesome operation to close the resulting fistula. Von Hacker’s and Witzel’s methods thus only come up for discussion.

With reference to the absolute patency of the fistula resulting from Witzel’s procedure, we shall not fail by always giving it the preference, provided it can be carried out. Contra-indications are, according to Van Noorden:—(1) Great weakness of the patient, which would forbid an operation of nearly half an hour’s time. This objection would not hold good any longer if we accept “early gastrostomy” in severe burns of the oesophagus. (2) If, on account of cicatricial tissue in the gastric wall, the two folds of the latter cannot be properly raised. This objection also falls to the ground if gastrostomy be done shortly after the accident. (3) If the stomach wall does not yield to traction. Witzel asserts that “even the very much contracted stomach” can be pulled forward in front of the abdominal wound by a steady pull continued for a short while. I can corroborate this by my own experience. The future must decide as to this point. (4) The small size of the stomach in young children.

In cases of this kind, then, we would resort to Von Hacker's method. If the points in question cannot be decided before, but are found during the operation, we will close the oblique peritoneal wound and add at once Von Hacker's incision. In children the rectus muscle is rather poorly developed. Its sphincter-like contraction will rarely prevent leakage. Then we would be in need of the Von Hacker-Scheimpflug canula or Mikulicz's glass tampon. Another drawback of Von Hacker's operation which has to be taken into account is that it will rarely close spontaneously after removal of the tube.

This spontaneous healing of the gastric fistula, as observed by Mikulicz, is certainly one of the most brilliant points in favour of Witzel's operation in this class of cases.

(2) *Malignant stenosis*.—Further experience is needed with reference to the merits and possible drawbacks in the final result of the Ssabanejew-Frank method before an attempt can be ventured at giving to each of the three operations its proper place. Yet the following may with propriety be said now. If further observation corroborates the experience made by Ssabanejew-Frank, and myself, namely, that after this method in every case perfect patency of the fistula also results, as after Witzel's, I do not doubt that it will become the standard operation for gastrostomy in cases of malignant œsophageal stenosis, and for these reasons: The operation can be more rapidly done than Witzel's; it is also safer, because the stomach is not incised primarily, but after the peritoneal cavity is closed; the stomach is, as in Witzel's operation, opened at once in the same sitting; a wide fistula results, which easily admits the largest-sized tube or nozzle of a syringe; the tube can be left out with safety; contraction cannot occur; thus the patient will be very comfortable and can himself easily introduce the tube whenever a meal is due.

If further experience should be adverse, however, which seems rather improbable, we again must elect between Von Hacker's and Witzel's operations only. About the same would hold good here that has been said above with reference to the cicatricial stenosis. If the patient be not too low, if the stomach wall can be drawn up and folded, Witzel's method will deserve preference in every case. But a large-sized tube should be selected for being infolded. Von Hacker's method will thus be reserved for those patients who are very low (cocaine anæsthesia).

It is to be hoped that, in view of these excellent operations, cases of malignant stenosis of the œsophagus will be nowadays referred to the surgeon in the early and not any longer in the last stage of the disease. "As soon as fluids and semi-solid food find some resistance in passing down, or as soon as the patient is visibly losing ground," says Mikulicz, "gastrostomy is

indicated." I should make an addition to this dictum, and say, "and as soon as the scales show a steady, though perhaps slow decrease in the patient's weight." For this reason such patients should be ordered to weigh themselves every week or fourteen days and report to the physician. "It is absolutely wrong to let gastrostomy be the very last resort. By such temporising, a condition of inanition will be produced in the patient which would contra-indicate an interference that otherwise has very little risk, if any. The surgeon cannot dare to do anything with the patient in a far-advanced state of inanition. The physician should be cognisant of the fact that a certain degree of strength and resistance is needed to stand even a relatively small operation ; that a certain degree of active work of the tissues of the organs and of the whole organism is required to heal even a small wound ; and that, lastly, the faculty of digestion and assimilation in the gastro-intestinal tract ceases in a certain stage of inanition, and cannot be awakened, even when a gastric fistula has been established. The patients starve to death with a full stomach, with full intestines." (Von Noorden.)

An early operation, on the other hand, will be less dangerous ; it can be done under general anæsthesia ; it will by its result, "the rapid improvement of the patient's general condition," enable the doctor to more easily conceal from the patient the real nature of his trouble ; it will spare the patient the continuously increasing difficulty in swallowing ; it will prevent dangerous and useless attempts at dilatation ; and it will prolong life on account of the slower growth of the tumour due to the elimination of the mechanical and chemical irritation produced by the passage of food. This point deserves to be especially emphasised ; with reference to it, gastrostomy for carcinoma œsophagi must be put in parallel with colostomy for carcinoma recti. The latter gives less trouble, grows slower, and breaks down less rapidly, if excluded from the intestinal tract ; the same holds good for carcinoma œsophagi.

Summing up, I would say :—(1) There are now three useful and reliable methods of gastrostomy at the surgeon's disposal. Of these, one (Witzel's) prevents leakage with absolute certainty. The two others, if properly carried out, promise the same good result. Thus the patient who had been submitted to this operation will not starve from regurgitation of the food alongside the tube. (2) In view of this fact, gastrostomy should be resorted to "early" in cases that will sooner or later need this operation. (3) In cases of burn of the œsophagus, primary gastrostomy and timely dilatation of the contracting scar will most probably prevent conditions which at present generally confront the surgeon in this class of cases, and are sometimes incurable. Witzel's method of gastrostomy deserves preference.

The oblique canal produced by it will close spontaneously when the tube has been removed. Thus a secondary operation will not be needed. (4) In cases of cancer of the œsophagus a gastric fistula should be established as soon as the scales show a steady decrease of the patient's weight. (5) Further experience is needed with reference to Ssabanejew-Frank's method before an attempt can be made at giving each of the three operations its proper place in the treatment of cancerous stenosis. If future observations be favourable, Ssabanejew-Frank's operation seems to be destined to become the standard one for malignant stricture of the œsophagus. If unfavourable, Witzel's method should be done wherever it can be carried out. (6) Von Hacker's method should then be reserved for far-gone cases, and should, if the patient be very weak, be done under cocaine anæsthesia, best at two sittings. If properly performed the outlook for making the fistula close tightly around the tube is good.—*The American Journal of the Medical Sciences*, October, 1894, p. 422.

56.—APPENDICITIS.

By J. WILLIAM WHITE, M.D., Professor of Clinical Surgery
at the University of Philadelphia.

[An address delivered before the Surgical Section of the College of Physicians of Philadelphia.]

As regards etiology we may first consider (*a*) the predisposing causes. The explanation of the great frequency with which the appendix becomes the seat of inflammatory and destructive lesions, as compared with the other portions of the digestive tract, is undoubtedly to be found in its anatomical relations. There can be no question that those structures which remain to us as functionless vestiges of parts once useful are possessed of low vitality and but feeble resistant powers. In addition, its dependent position, its communication by an orifice, often more or less narrowed, with that portion of the intestine in which inspissation of intestinal contents first occurs, while at the same time it is removed from the direct fæcal current, all appear to be conditions so markedly predisposing to inflammatory attacks that we need look no further for a sufficient explanation of the extraordinary frequency of appendix trouble. We may next consider (*b*) exciting causes. Putting aside the comparatively rare cases in which tuberculous or other general disease localises itself in the appendix, we have two chief classes of exciting agencies, clinical differentiation of which is to be earnestly aimed at: the mechanical and the bacterial or infective. The

atter comes into play usually, perhaps almost constantly, as a sequel of the former, which may, I believe, exert its action alone from first to last in many cases. The following anatomical points must be remembered. The appendix is commonly found curved upon itself because its mesentery, derived from the inferior layer of the mesentery of the ileum, is too short for it. Along the free concave border of the mesentery runs a single vessel, a branch of the ileo-colic, and from this branch the appendix as a rule derives almost its entire blood supply. Another peritoneal fold runs from that part of the ileum most remote from its mesenteric attachment, and is united with the mesentery of the appendix. It carries no bloodvessels. It is the remains of the true mesentery of the appendix. (Treves.) It is interesting to note the fact that, in the different types of cæcum found in our species, those which involve a disproportionate growth of the cæcum show that it derives its peritoneal covering partly at the expense of the mesentery of the appendix, which becomes more and more scanty and more vertical in direction the larger the relative size of the cæcum. We here have the factors which enter into the production of a large number of cases of appendicitis. Distension of the ileum with gas, or of the caput coli with gas or fæcal matter, will cause dragging on one or the other of these folds, already too scanty, increase the torsion of the appendix, interfere with the blood-supply through its single vessel, and, according to the degree of torsion, produce congestion and tumefaction, catarrhal inflammation, ulceration or gangrene, with the clinical symptoms that belong to each. The importance of the matter will be apparent if we remember that it has been asserted that all cases of appendicitis are infectious in their nature, and that from this assumption has followed the corollary that all cases should be operated on, as one attack means almost certainly another at some future time. It seems probable, though hardly yet proven, that the bacterial cause of appendicitis is as a rule the bacterium coli commune. It is almost invariably to be found in the intestinal tract, and seems in the presence of sound mucous membrane to have little or no power for evil. But it is equally well demonstrated that if the epithelium is once destroyed it has both pathological and pyogenic properties. (c) A third class of causes which may be regarded as both predisposing and exciting must be made to include fæcal concretions and foreign bodies. The latter, once thought to be the chief factors in producing the disease, are now known to be of great rarity, occurring in only about 4 per cent. of operative cases. Fæcal concretions are found in 15 to 20 per cent. of such cases, and there is evidence to show that they may occasionally by their presence give rise to the lesion of the mucous coat which

precedes infective processes, but they are so often absent in cases of all grades of severity, and so often present at necropsies on persons who have died from other diseases, that they should not be considered of primary importance.

How are we to recognise clinically the cases in which the mechanical element alone is the factor and the circulatory disturbance stops short of the production of necrotic lesions of epithelium, mucous membrane, or appendix wall? If the views advanced as to etiology are sound, not only do such cases occur, but they probably outnumber the more serious forms of the disease, frequent as are the latter. Statistics support this view, as there is good reason to believe that from 60 to 80 per cent. of cases of appendicitis recover without operation, and in the majority of these cases an infectious element must almost certainly be absent. Nor do the facts bear out the assertion so often made recently that such recoveries are merely apparent or temporary. If we review the early symptoms of a typical case of so-called mild or catarrhal appendicitis and assign each to its anatomical or pathological cause, it is discouraging to find that thus far we have at this stage practically no means of distinguishing the cases which are going to stop short of grave organic lesion from those which, unless cut short by surgery, are predestined to almost certain fatality. Let us suppose that we have a case in which constipation (which has been obviously or unsuspectedly present in 90 per cent. of my cases) or diarrhoea, or at least some digestive derangement, has caused intestinal distension with faecal matter or with gas, or irregular and excessive peristalsis in the ileo-cæcal region. The meso-appendix is dragged upon, the torsion of the appendix increased, and the return of blood interfered with; the arterial supply, more difficult to disturb than the venous current, is but little affected. If we could see such an appendix we would undoubtedly find swelling and congestion, hypersecretion, and nerve irritation. It seems to me theoretically unreasonable to suppose that in every such case there is necrosis even of epithelium or infection even of low grade. The usual symptoms of such a case as we are considering, with their explanation, are:—Pain, at first general and diffused over the abdomen, because the superior mesenteric plexus of the sympathetic, which supplies the appendix, also largely supplies the intestines, and because irritative nerve pain is apt to be referred to the peripheral extremities of nerves; next, and within a very short time, it is felt in the umbilical region, because as such pain increases in intensity it is often referred to the nearest nerve centre, and the great sympathetic ganglia of the abdomen are situated in that region. After a few hours there is tenderness on pressure in the right iliac fossa. It is a localised tenderness in all the

varieties of appendicitis, because, while the appendix itself is movable, it always arises from the same part of the cæcum, and the mobility of the latter is much more restricted. The point of pain on pressure, known as McBurney's point, indicates, therefore, with moderate accuracy the base, not the tip, of the appendix, and is rarely absent even in gangrenous cases, because that portion of the appendix is usually the last to be affected by interference with the blood-supply. Vomiting commonly follows, has little relation to gastric conditions, and is ordinarily reflex and due to reversed peristalsis as the ejecta show a degree of digestive change corresponding to the time which has elapsed since the last meal. Moderate fever (99.5° to 101° F.) and slightly increased pulse-rate (90 to 110) are usually present, and are doubtless due to the absorption of intestinal products. There is slight rigidity of the right rectus muscle, and later of the other abdominal muscles over the right iliac fossa, often, but perhaps not necessarily, due to peritonitis, and in any event arising from the fact that those muscles receive their nerve-supply from the seven lower intercostals, while the superior mesenteric plexus gets its contribution from the spinal system through the splanchnics derived from the same seven intercostals.

This group of symptoms includes all that are of any value in this type of appendix trouble. It has been asserted that to speak of the first day that the patient complains of pain as the first day of the disease is fallacious, and it is said that what we recognise in appendicitis is peritonitis, which has been preceded by ulceration of the mucous membrane and a perforation of the appendix itself. Now if this were demonstrably true it would, I think, oblige us to accept the rule laid down by some surgeons that the diagnosis of appendicitis brings with it the obligation to operate. But it is demonstrably untrue. Not only does not every case with the above symptoms have precedent ulceration, but there have now been enough early operations and removals of appendices at this stage to enable us to say positively that, apart from the conditions already described—swelling, congestion and associated vascular changes, and nerve irritation—there are often no grave lesions of either the mucosa, the parietes of the appendix, or of its peritoneal covering. While the explanation already given of the etiology and symptoms in these cases shows (1) that they may depend upon mechanical causes, and are not necessarily infective, and (2) that there is no phenomenon associated with them which of itself indicates either a solution of continuity of the mucosa, infection of the appendix wall, or peritonitis; unfortunately it must also be said that there is none which excludes the graver conditions. Colicky pain, localised tenderness, slight abdominal rigidity,

vomiting, and moderate fever may be the only symptoms of a case which is going on to a rapid termination by gangrene, perforation, and septic peritonitis. It must therefore be decided whether, taking a large number of such cases, medical treatment or operation offers the best chance for recovery. At present the facts seem to be as follows:—Perhaps 80 per cent. of cases of this type recover under medical treatment. Of the remaining 20 per cent. at least one-half can be saved by operation during the condition of localised abscess, which would form in probably that proportion of cases. Of the remaining 10, in which no protective adhesions would form, a certain indeterminate proportion would recover after operation done before septic peritonitis and intestinal paresis had occurred. This would leave a death-rate of, say, from 5 to 8 per cent. If, on the other hand, every case were operated on as soon as seen, would this death-rate be increased or diminished? The operation, however skilfully conducted, means of necessity a certain amount of traumatism to the peritoneum, and an equivalent diminution of its local resistant power.

As to the diagnosis of the class of cases we have just been considering, it is to be made chiefly from stercoral typhlitis. Now, if in so many cases fæcal distension of the cæcum is the starting point of appendicitis, it is reasonable to believe that in some of them the trouble does not pass beyond the cæcum, and it is important to recognise these cases, because the prognosis is so much more favourable, and operative measures need not, as a rule, be thought of. They have occurred with me chiefly at the times of life when appendicitis is less common, and more especially in children. They can be recognised with certainty only by the initial presence of a doughy, sausage-shaped tumour in the cæcal region, associated with the usual symptoms of appendicitis in a modified form. The localised tenderness is not so great, the fever is very moderate, vomiting is rarely a prominent symptom, and constipation is almost invariable, though occasionally a spurious diarrhoea may make its appearance. The discovery of a tumour in the very beginning of an attack of apparent appendicitis of obviously mild type would, I think, justify the diagnosis of stercoral typhlitis; but I know no other way in which the diagnosis can be made, and in the absence of that symptom it would be safer to consider doubtful conditions as almost certainly indicating appendicitis.

It will be convenient now to consider the non-operative treatment of these mild "catarrhal" cases before passing to those of the next grade. Ordinary clinical experience with other forms of enteritis demonstrates the value of absolute rest in bed and on the back. The frequent inability of the stomach to retain food, the certain inability of a portion of the intestinal

tract to take care of the residue even if it reaches that point, and the absolute need for the avoidance of all sources of local irritation, point clearly to a diet reduced to the lowest possible terms. The use of heat, drawing the blood to the superficial veins of the abdomen, of cold, by means of ice kept on long enough to bring about local anæmia extending to the parietal peritoneum or deeper, and the actual abstraction of blood by leeches seem to have about equal claims to employment. Personally I prefer either the heat or the blood-letting. I strongly object to blisters, iodine, and ointments as rendering the skin unsuitable for a satisfactory operation later if one be required. The question about which there is the widest apparent divergence of opinion concerns the respective merits of the use of salines and the use of opium. My present opinions, which have not been reached without some thought and much hesitation, but which seem to me more and more satisfactory as my experience widens, are based on the following considerations: I have never happened to see one of these extremely mild cases, in which there was diarrhœa, or one in which the bowels were moved easily by enemata or aperients, run into the graver type of case. Every surgeon who has had any abdominal work knows how essential it is to have the intestinal tract thoroughly evacuated before operation. As any cause of appendicitis may become an operative case, it is of the highest importance that in the early stages whatever remains of peristalsis should be encouraged and not destroyed by the use of opium. For these various reasons my rule in practice is in all ordinary mild cases to give salines until free purgation is assured, and then to continue the action more gently by the use of divided doses of calomel, which by its antiseptic properties has a distinct value, and through its effect on the portal circulation aids also in the depletion of the ileo-colic vein and its tributaries.

Spontaneous severe colicky pain, although distinct from pressure tenderness, is the only indication I recognise for the use of opium, and I give it then in minute doses combined with enough calomel to overcome its constipating tendency. I am at present satisfied that this treatment is practically sound, and I am certainly convinced that many patients to whom opium is given early and freely die partly because the imperative need for operation is thereby disguised and the favourable opportunity lost, and partly because that free evacuation of the bowels so necessary for success is interfered with. I may say here before leaving the subject of the medicinal treatment at this early stage that in my judgment, not enough attention has been paid to what might be called the antiseptic treatment of appendicitis. In all forms of sepsis, present or threatened, there is good reason for believing that the systematic administration of soluble

and powerful antiseptics is of far more importance than is commonly supposed. If the medicinal and dietetic treatment has been successful the symptoms gradually disappear, the local tenderness often being the last to go. Scrupulous continuance of rest, restricted diet, and mild laxatives should be continued for from one to two weeks. If the symptoms are worse instead of better at the end of forty-eight hours, or earlier than that if there is severe sharp pain, increased tenderness and rigidity of the abdomen, and beginning tympany, either local or general, I think there can be no doubt that surgical interference offers by far the best hope of recovery. In the majority of cases these phenomena then indicate a perforation of the appendix wall, possibly not macroscopic, but permitting the filtration through it of bacteria and their products. So far as diagnosis goes there is practically no condition for which such a case can be mistaken. It is of course not impossible for resolution to take place in these cases. Not every one of them goes on to gangrene in mass and to infection of the general cavity. Even if resolution does not occur a protective inflammation may wall off the appendix and does so in a large proportion of cases. But there is absolutely no way of recognising with any reasonable certainty which of these three events will follow:—resolution and recovery; localized abscess, with from 90 to 95 per cent. of chances in the patient's favour; or general peritonitis, with almost sure death if it is once well established. If operation is done at this stage it is unusually easy. While, however, I believe more patients would be saved by operation at this time than by any temporising measures, I may say that experience has taught me to await events with more equanimity: (1) If the bowels are loose. (2) If the pain is dull and throbbing and not sharp and lancinating; the former I refer to a tense appendix with infiltration of the wall, but without gross perforation or intense or widespread peritonitis. (3) If the spot of greatest tenderness on pressure by a finger-tip is not precisely at McBurney's point. This is an empirical rule, but I have noticed in a number of cases in which there was delay at this stage, and which finally did well without operation that the point of greatest tenderness so anxiously investigated at each visit was more or less remote from the usual region. (4) If vomiting is not marked. It is not usually a prominent symptom of this stage of appendicitis in cases which lead to recovery. It will almost always be found present in an inverse relation to the looseness of the bowels. Its absence is a very favourable circumstance, and always, and I believe justly, influences my prognosis. (5) And, finally, I am less anxious during this period of delay if, without marked change in the general condition, increased resistance, slight dulness, and the presence of a mass

recognisable by palpation indicate that a localised abscess is forming, shut off by adhesions from the general peritoneal cavity.

We may pass in this condition of uncertainty into the period extending from the third to the fifth day with very little alteration of the symptoms, but usually during this time one of the three events already mentioned will occur. If the bowels continue to act spontaneously or with mild laxatives, if the tympany, which may be quite marked, begins to decrease, if the fever lessens, and especially if tenderness remains well localised and tends to subside, the prognosis is, on the whole, favourable, although the patient is unquestionably in grave danger during every minute of this time. If no amelioration of these symptoms occurs, although no new ones develop, the case at that period, from the third to the sixth day, becomes one of the most anxious and trying with which either physician or surgeon can be confronted. It is the time at which, as Richardson has tersely put it, we may feel that it is "too late for the early operation and too early for a safe late operation." It is probable that adhesions have formed, offering a certain degree of protection against general infection; but experience shows that in many cases they cannot be depended upon, and we may find at any visit that the tenderness and tympany have increased in intensity and become more widely diffused, that vomiting is more frequent and uncontrollable, that the fever has risen to 104° or 105° F., or, more ominous still, has disappeared leaving the temperature subnormal; in other words, that the general peritoneum has become involved. If, with the fear of this occurrence before us we proceed in such a case on the fourth or fifth day to removal of the appendix we do so with the knowledge that there is much risk of breaking up the recent and delicate adhesions which have thus far been the patient's safeguard, and we know that it is not always possible under these circumstances, however thorough and minute our precautions, to prevent a spread of the infection. With absolutely identical symptoms on which to base a prognosis at this stage, any two cases may go on, one to recovery, the other to death, and the same remark applies to the result of operation. On the whole, however, this very uncertainty tends to favour operation in spite of its undoubted dangers. We are now dealing with a case of circumscribed peritonitis threatening to become general. What we need is information as to what symptoms indicate a persistent circumscription of the inflammatory action, whether it be suppurative or otherwise, and what symptoms point to an extension to the general peritoneum. Treves has shown that in the larger proportion of cases of fatal peritonitis the leading symptoms are those of poisoning and not of

inflammation. Extension of the latter to the general peritoneum means that a large part of the enormous area of that membrane takes part in the absorption of the products of the bacterial infection. It should not be forgotten that the cases in which suppuration is most pronounced are among the most favourable examples of peritonitis, and that the most hopeless cases are often among those that show the least inflammatory changes. At present we have no safe rule to guide us as to the greater or lesser likelihood of generalisation in any particular case of appendicitis in the stage of circumscribed peritonitis. As we know clinically that localised varieties of peritonitis and circumscribed exudations are very rare in the area occupied by the small intestine, and as we know both clinically and experimentally that the peritonitis which involves its covering is of the most violent and intense variety, it might perhaps be safe to say that where the area of tenderness is small and distinctly confined to the cæcal and pericæcal area the prognosis is more favourable than when it extends beyond that region, and the latter occurrence might thus be regarded as pointing in the direction of generalisation, and therefore of operation; but I have no reliable observations to confirm this view, which may be unsound as a practical guide.

Of the phenomena which mark the actual onset of diffused peritonitis perhaps the gradual increase of tympany and tenderness and persistent vomiting is the most significant.—*The Lancet*, February 16, 1895, p. 389.

57.—TWO CASES OF ENTERECTOMY IN WHICH MURPHY'S BUTTON WAS USED.

By W. MITCHELL BANKS, M.D., F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

In the two following cases Murphy's button was used as a means of end-to-end approximation of the intestine.

A. M., an unmarried female, aged 30, had enjoyed very good health until about eighteen months before her admission into the Liverpool Royal Infirmary. She then began to suffer from attacks of constipation, which were relieved by purgatives and dieting. During the intervals between these attacks she was quite well. As time went on the attacks became more frequent and more severe, each succeeding one lasting a longer time and being more difficult to get over. Moreover a certain amount of pain and discomfort began to be experienced in the region of the cæcum. She lost flesh, and, during the attacks, there

was not only constipation but vomiting. At last complete obstruction came on. As her life was in serious danger, she was transported from North Wales, where she lived, to Liverpool. When she arrived she was in an extremely emaciated condition and greatly exhausted. The obstruction had been complete for a fortnight; nevertheless, the abdomen was not much distended, because the patient had been fed on the smallest possible amount of easily absorbable liquid food, and had been kept free from pain by opium. Being so thin as she was the action of the small intestine could be plainly seen through the abdominal wall struggling to force a passage through some obstruction, but where that obstruction was could not be ascertained. The only guide was the patient's statement that most of her pain and uneasiness were felt in the region of the cæcum, but nowhere could any tumour or swelling be felt. As she was obviously nearing her end unless relief were given, the abdomen was opened in the middle line so as to permit of an inspection of all parts of the cavity. Presently distended and hypertrophied small gut was found, which, being followed down to the cæcum, led to the cause of obstruction. This was a thickened and strictured condition occupying about two inches of the bowel, and intensely hard to the touch. At the moment its hardness induced us to believe it malignant, but subsequently microscopical examination showed it to be mostly fibrous. This could not have made any difference in the treatment, for nothing short of removal would have been of any avail.

The difficulties in connection with it were two: (1) That the ileum on the proximal side of the stricture, by reason of its severe and protracted exertion, had become enormously hypertrophied and increased in calibre, so that it was quite as large as great intestine, while the ileum between the stricture and the ileo-cæcal valve was atrophied, and not larger than the small bowel of a child. (2) That the last-mentioned piece of bowel was extremely short, being only about three-quarters of an inch in length, and when the stricture was cut out became even shorter by retraction of its muscular coat. It is difficult to imagine more difficult circumstances under which to attempt union of intestine. As something, however, had to be done, I rapidly removed the stricture, and proceeded to fit the Murphy's button. The difficulty with the proximal end was that it was far too big for the upper half of the button, and had to be very much crumpled up; while, on the other hand, the distal end was so short and small that I could not get enough to cover the button until I had divided one flap of the ileo-cæcal valve and thrust it into the cæcum. All this had to be done in such a hurry, owing to the weak condition of the patient, that it was done in a manner which I felt was unsatisfactory and

imperfect, but there was no help for it, and we were glad to get her back to bed alive. She lived for thirty hours, but never properly rallied. At the post-mortem examination it was found that semi-fluid fæces had passed abundantly through the button, so that there was no longer any obstruction ; also that the bowel was well united and soundly glued together, except at one small point, and at that point a little fæcal extravasation had taken place. Commenting upon the case one would say that the real cause of failure was the exhausted condition of the patient, so great that she would have died under all circumstances, whether the button had held completely tight or no. The only other method I could have employed would have been to have united by an end-to-side approximation the proximal end of the ileum with the ascending colon, closing up the short end of ileum which led into the cæcum. Theoretically this would have been the best thing to do. Practically the condition of the patient did not permit of more than was done, and that was done in such a hurry that it was done imperfectly. Nevertheless, the untoward result of the case did not prejudice me against the use of the Murphy's button. On the contrary, I at once recognised in it such valuable qualities that I resolved to use it the very next chance I had. This occurred within a few weeks, the facts of the case being briefly thus.

On Saturday evening, December 29th, 1894, I was asked by my friend, Dr. Holmes, of Anfield, to see at his own home, A. H., a schoolboy, 7 years of age. His mother told us that he had for a long time been in the habit of bolting his food. For some weeks before his present attack he had gone as usual to the water-closet after his hastily-swallowed breakfast, but had come down complaining of griping pains in his belly, which passed off after a little while. On Sunday, December 23rd (six days before I saw him), he had been taken with pains all over him, and remained in the house. Next day (Monday) he lay on the sofa, "generally ill all over." In the evening he had a dose of castor oil, which was said to have operated twice in the night. From that time onwards he had complete obstruction. On Tuesday he had frightful abdominal pains, and vomited everything, and this continued on Wednesday and Thursday. On Thursday evening he had a simple enema, and on its return it was accompanied by the passage of a considerable quantity of blood. On Friday and Saturday he was comparatively free from pain, and lay in a quiet dreamy state. The abdomen was not much distended, but all that could be felt was that there was a feeling of fulness to the right of the umbilicus. A diagnosis was made of intussusception, chiefly owing to the passage of blood. It was agreed that if no relief came during the night the child should be brought to the Royal Infirmary next day (Sunday, December

30th). This being done the abdomen was opened in the middle line, and an intussusception of the ileum, situated about 18 inches from the cæcum, came readily up to the incision. The bowel was black and gangrenous at the sight of constriction, and for some distance downwards from it. Points were selected quite free of the mischief, the bowel divided at them, and its ends approximated by a Murphy's button. The abdominal wound was completely closed. The boy soon began to get over his shock. On the nineteenth day the button was passed, and on the thirty-eighth day he was sent home. Here a correct diagnosis was made. One was prepared for what was coming, and the operation was done with the greatest ease and rapidity.

Dr. Murphy's button has been in use for about two years and a-half in America, and in a paper published by him in the *New York Medical Record* for June, 1894, he refers to sixty-five cases that he had collected. The success seems to have been astonishing. Of course one must always remember that on the introduction of any new surgical procedure the successes attributed to it are very remarkable. This arises from the modern practice on the part of surgeons of recording their successful and saying nothing about their unsuccessful cases. It is a miserable and dishonest habit, and causes much of our recent surgical literature to be very untrustworthy. But even if one were to deduct a considerable percentage for unsuccessful cases not reported there would still remain such a mass of splendid work as to compel the serious attention of all persons interested in abdominal surgery. To those who wish to look into the literature of the subject, Dr. Murphy's papers in the *New York Medical Record* (just referred to), and in the *Lancet* of September 15, 1894, will give a vast amount of information. So far as I can gather from the journals the button has been used in this country on three occasions; at any rate I cannot find reports of other cases. In the *Lancet* of April 21, 1894, Mr. Arbuthnot Lane described a case of sarcoma of the sigmoid, where the tumour was removed along with 12 inches of the large intestine, the bowel being approximated end to end. The button was passed on the eighth day. There was some slight fæculent leakage, but it escaped into the wound, which was conveniently situated for its exit. In the *Lancet* of October 20, 1894, Mr. Paul Swain narrates a case of non-malignant stricture of the small gut in a lad aged 15, the result of injury, which he removed along with 5 inches of intestine. The button passed on the thirteenth day. In the *British Medical Journal* in January, 1895, a brief reference is made to a case of removal of gangrenous intestine by Dr. Murphy, of Sunderland. Mr. Lane spoke in praise of the button, and Mr. Swain wrote as follows:—
"The great objection to all intestinal resection is the length of

time spent in securely suturing the ends of the gut. I was surprised at the facility with which the operation was performed. I was only familiar with the use of the button from the description I had read, and yet I found the reunion of the gut a very easy process. The adaptation of the serous surfaces was so perfect that it was with entire confidence that I returned the bowel into the abdominal cavity."

In abdominal surgery two great factors make for success—maintenance of an absolutely aseptic condition of the peritoneum, and rapidity in the actual performance of the operation. In ovariectomy and uterine laparotomies this second condition is not so important as in operations for intestinal obstruction, for the patient of the gynæcologist, although often very worn and emaciated, is, at all events, seldom in a condition of general poisoning, whereas the victim of intestinal obstruction, by reason of fæcal auto-infection, is in a thoroughly poisoned state, and almost infallibly succumbs to a protracted operation. Any means, therefore, that will shorten the duration of time occupied in joining intestines together is of moment. I think the general testimony is that Murphy's button fulfils this requirement.

The first of the two patients whose cases I have recorded lost her life through the fact that she was so weak, that the time necessary for the performance of the operation undertaken for her relief was not sufficient to enable that operation to be done satisfactorily. This, by the way, was her own fault, as she objected to an operation until too late.

Returning, finally, to the question of Murphy's button, I will not say that (to use the customary phrase) it has "revolutionised" intestinal approximation, but I do regard it as the best all-round mechanical implement that we have at present for the union of the divided bowel. The *primâ facie* objection that the button would stick somewhere on its journey downwards is answered by the fact that no such case has occurred. As to its producing stricture subsequently, it is less likely to do that than any other method of approximation, because it punches out all the superfluity of the inverted intestinal diaphragm and leaves only a narrow ring, along which union takes place. I cannot make any statement as regards other mechanical means, because each inventor gets used to his own apparatus and can manipulate it quickly, but I can testify to much greater ease and rapidity in uniting bowel by the use of the button than by the simple Czerny-Lembert suture. By this last method I have removed portions of gangrenous hernial small bowel on three occasions, the first case dating as far back as 1883. The history of it is to be found in the *Transactions* of the Medical Society of London for 1885. It was a great success, but the next two cases ended fatally, and I came to think that the safest plan was to make an

artificial anus at the site of hernia and trust to uniting the bowel by some means or other at a subsequent date. I may come to change my mind on this point now.—*British Medical Journal*, February 23, 1895, p. 410.

58.—RELAPSING TYPHLITIS.—OBSERVATIONS ON A SERIES OF CASES TREATED BY OPERATION.

By FREDERICK TREVES, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital.

In a paper read before the Harveian Society in April, 1893, I gave a brief account of a series of 14 cases of relapsing typhlitis treated by operation. I would now add to that account a further series of 18 cases of relapsing typhlitis in which I have carried out an operation during the quiescent period. I have excluded those far more numerous cases of acute typhlitis in which an incision is called for for the purpose of evacuating pus, and those not uncommon examples of operation in chronic cases for the relief of a persisting sinus.

The operation for the removal of the appendix was carried out when every symptom of the inflammatory trouble had disappeared. All the 18 patients made a good recovery except one. This case represents the only fatality I have ever had from this operation.

It has been now apparently demonstrated that that form of localised peritonitis which is known by the names of typhlitis, perityphlitis, and appendicitis is due in the great majority of instances to the bacterium coli commune.

The bacterium coli commune exists normally in the human body, and is said to be the most abundant and the most constant of the bacteria found in the individual in health. Its natural habitat is the bowel, and it has been demonstrated to be present along the whole length of the alimentary canal from the mouth to the anus.

The micro-organism has this notable feature, that it varies greatly in its virulence. So far as experiments upon animals are of value, it would appear to be harmless when taken from the normal intestine. If, however, the bowel become the seat of almost any morbid condition, then the bacillus becomes at once virulent. Virulence has been found to be developed in cases in which the bowel was obstructed, strangulated, or inflamed, in congestion of the intestine, in diarrhoea, in advanced constipation, and in other abnormal states. This

point is of no little moment in the etiology of perityphlitis. In a large number of cases the attack is preceded by constipation, or by the decomposition of undigested matters in the bowel, or by diarrhoea, or by exposure to cold, or possibly, although rarely, by injury.

If measures can be adopted to render the bacterium non-virulent, then a great step has been taken in the preventive treatment of the affection.

Two elements at least would appear to be necessary to produce an attack of localised peritonitis through the medium of the appendix. The first is such a condition within the bowel as will render the colon bacillus virulent; and the second is such a lesion in the appendix as will permit that bacillus to reach the peritoneum. The invasion of the peritoneum by the micro-organism gives rise to sudden, violent, and acute symptoms, to an outbreak so abrupt and intense as to produce the impression that the appendix has become perforated. Perityphlitis, due primarily to a sudden definite perforation of the appendix is certainly uncommon. In not a few instances in which the last attack was sudden and acute I have failed to detect any visible breach in the outer surface of the appendix.

If a large series of cases of this affection be passed in review, it will be found that the number of instances in which there has been only one attack is much greater than that in which there have been several attacks. In a certain proportion of the examples of a single attack there has been an abscess, and the great majority of the subjects of typhlitis who have passed through the stage of suppuration are thereby rendered free from any further attacks. The cause of the trouble has been removed by the suppurative process. The abscess cavity may apparently heal, and what is improperly called a second abscess may form, but that does not as a rule represent any fresh mischief at the original seat of disease.

Among the morbid conditions of the appendix which are necessary to produce relapses, the following are probably the most common. The lumen of the appendix is in some places narrowed or occluded, and the contents of the little tube are unable to escape. Such occlusion may result from a twisting of the organ, or from an acute bending of it, due to the contraction of adhesions, or from a cicatrix in its interior due to extensive ulceration. In other examples a quantity of inflammatory material, amongst which may be found the gangrenous tip of the appendix, is embedded within a mass of firm adhesions as an explosive within a bomb. In a third series of examples the organ shows a condition well adapted for volvulus, or there is lodged within it a calculus or a faecal concretion.

Mere ulceration alone would not appear to be a cause, certainly not a common cause, of relapses. Perforation, in the ordinary sense of the term, would appear to play a very little part.

The cases adapted for operation are comparatively few, and the simplicity of the surgical treatment has rather cast into the shade the somewhat neglected measures of the physician. Instances in which there is abiding tenderness and some swelling in the cæcal region, with very frequent attacks of pain and fever, are, I believe, amenable to no measure short of operation. In all such cases I have found the appendix to be distended with pus.

In examples not so marked such measures as the following may bring the attacks of typhlitis to an end :—(1) The digestion must be attended to. If the teeth are defective the deficiencies must be made good. The bolting of ill-masticated masses of food is not an uncommon exciting cause of perityphlitis. The meals must be taken at regular hours, the patient must eat slowly, and must rest after each meal. Not a few attacks in active business men can be ascribed to a hurried lunch, which is eaten “with the loins girded” one day at one o’clock and another day at three. The food must be simple and digestible, and of such a kind as to leave as little *débris* as possible in the intestine. (2) The bowels must be made to act daily. The aperient given should be frequently changed. (3) Massage of the abdomen appears to have in many cases a very admirable effect, partly, it may be, by promoting the absorption of inflammatory exudations, and partly by encouraging a normal action of the bowels. With massage may be associated suitable exercise. (4) The use of some intestinal antiseptic. The most efficient would appear to be salol. It should be given in a powder (in milk or in a cachet) in 10-grain doses night and morning. Salol in the form of tabloids is very apt to leave the rectum in precisely the same form as it entered the mouth. I have seen such tabloids discharged from an artificial anus entirely unchanged. The value of this drug can be well observed in examples of an artificial anus made in the cæcum. The escaping matter may be very foul and mixed with bubbles of gas, and when in this condition is apt to act as a corrosive upon the skin, producing great distress. A more wholesome condition of the discharge—as shown markedly by the improvement in the skin—very soon follows upon the use of salol. In only one case have I seen carboloria attend the use of this drug.

The actual operation is a measure which may prove to be exceedingly difficult or exceedingly easy. Some of the cases have been most trifling. On the other hand, in two instances I failed to remove the appendix after very persisting attempts.

It is impossible to predict beforehand the features of the operation. The attacks may have been violent and numerous, and the removal of the diseased process nevertheless prove to be a mere trifle. On the contrary some of the most difficult operations I have met with have been in cases in which I had hoped from the history of the attacks to have encountered no complications. With one exception I have made the incision directly over the cæcum, that is, about in the position occupied by Mr. Cripp's incision for iliac colotomy on the left side. The peritoneal cavity should be opened with caution. The cæcum may be adherent immediately beneath the line of the incision, and may be readily cut into.

The dealing with adhesions constitutes the real difficulty of the operation. An adherent appendix may hide a perforation in the cæcum. I have met with a thinned and dilated ureter among the adhesions and realised that it could readily be mistaken for an appendix. This structure and the iliac veins are in some danger in certain of these operations.

The serous coat of the appendix is divided and the little process is ligatured with silk in the groove thus made. The projecting mucous membrane is then cut away, and the detached peritoneum is then carefully stitched over the stump. When this cannot be done a hood of peritoneum is obtained from the neighbouring serous membrane. Throughout the operation the "vivisector's tool" is most useful. Iodoform is dusted over the exposed area of peritoneum and the wound is closed by means of a continuous silk suture of the peritoneum and a series of silkworm-gut sutures, which involve the muscles and skin.—*British Medical Journal*, March 9, 1895, p. 517.

59.—PROLAPSE OF THE RECTUM TREATED BY VENTRO-FIXATION.

By ARNOLD CUDDY, F.R.C.S., of Calcutta.

Mr. Cuddy records the case of a male patient, aged 32, in whom there was a complete prolapse of the rectum, six inches in length and eleven inches in diameter.

The mucous membrane, which was in numerous circular folds, was covered with slimy mucus, and was bleeding slightly at several small points. There was no particular pain or tenderness on handling the prolapse. The orifice of the bowel was directed towards the coccyx, it easily admitted the finger, and no thickening could be felt in any part of the prolapse on palpation with the finger in the bowel. In the lithotomy

position the prolapse was with some difficulty replaced and retained. There was complete atony of the sphincter. There was no sign of any external piles or rectal polypus.

Chloroform was administered, and an incision was made three inches in length, parallel with and two inches internal to Poupart's ligament, the omphalospinous line crossing the centre of the incision. The parietes, which were very thin, were carefully divided down to the peritoneum; the bleeding was slight and easily stopped by torsion. The peritoneum was opened, and the large intestine was picked up. The gut was greatly hypertrophied, and the meso-sigmoid and meso-rectum were very long. The large intestine was followed along downward, and pulled until the upper part of the rectum was felt to be drawn up to the wound quite taut and straight. The forefinger was passed to the bottom of the recto-vesical fold, and the peritoneum could there be felt thrown into numerous pleats. The skin being retracted, two needles armed with stout-corded silk were passed through the abdominal muscles and peritoneum, one inch from the lower margin, and one-half inch from the two extremities of the original incision; the needles were then passed and returned through the meso-rectum, and back again through the abdominal muscles; when tied they formed two strong mattress sutures. By this means the bowel was kept taut, and the prolapse reduced, also by fixing the meso-rectum to the lower margin of the incision the bowel hung over towards the middle line. The peritoneum was then united with fine silk sutures, which were also passed through the adjacent appendices epiploicæ, with the view of strengthening the adhesions of the bowel to the abdominal wall. The muscles were then sutured separately with fine silk, and the skin with silkworm gut. The wound was dressed with boric acid gauze and salicylic wool, and a binder applied.

The recovery from the operation was uncomplicated, and seven weeks later there had been no return of the prolapse.—*Annals of Surgery, February, 1895, p. 153.*

60.—REMARKS ON EXCISION OF THE RECTUM.

By F. T. PAUL, F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

Excision of the rectum, except in the minor degree, has not been warmly advocated by surgical writers in this country. Even the pioneer, Harrison Cripps, out of an experience of 400 cases of cancer of the rectum coming under his notice, has only

actually operated in 38 (1892), and does not appear to approve of the major operation. In the same way that cancer of the tongue requires different procedure for its removal, in accordance with the situation and extent of the disease, so proctectomy varies considerably, and a different operation will be called for in each of the four following classes of case :—(1) Carcinoma of the lower end of the bowel all within easy reach of the finger ; (2) growths which have commenced high up, but are or have come down to be within reach of the finger ; (3) extensive growths commencing low down, but the limits of which cannot be defined ; (4) growths too high to be recognised without laparotomy.

Of the first class, in five cases the lower part of the rectum was removed by the operation advocated by Mr. Cripps. First an incision is carried from the anus to the tip of the coccyx, splitting the rectum in the middle line posteriorly. If the disease is placed quite low down, incisions are next made round the anus, which is removed with the growth, otherwise it should be left. When the above incisions are completed the lower part of the bowel is freed on all sides with scissors well beyond the limits of the growth, great care being taken of the urethra. During this stage hemorrhage is free and is I think best dealt with by operating rapidly whilst an assistant does what he can with sponge compression. Finally the bowel is divided. This was formerly effected with an *écraseur*, the wound being left to granulate. Recently more bowel has been drawn down, cut through with the scissors, and sutured to the posterior angle of the wound when the anus has been excised, but to the latter when it is left.

The second class of cases may sometimes be very satisfactorily treated by operation. The method adopted has been to remove the coccyx, and if necessary a part of the sacrum, then excise the growth through an incision in the posterior wall of the rectum (Kraske's operation).

The cases included in Class 3 are much more hopeful than would be supposed. Such patients, unless they elect to remain as they are, must choose between colotomy and the high operation. I unhesitatingly recommend the latter whenever possible, even although it may be doubtful if the entire growth can be eradicated. What we have to look to are the comfort and the subsequent duration of the life of the patient. Can these be improved without undue risk ? From what I have seen of death from cancer of the rectum, I believe it to be incomparably more distressing than death from internal extension or recurrence of the growth, so that if the local disease can be removed it is at least a gain to the patient's comfort whilst he lives. Colotomy affords less relief than excision, and for a much shorter

period. Moreover, the patient always prefers the artificial anus to be somewhere near the site of the natural orifice. The mortality of Kraske's operation must, of course, be higher than for such a simple proceeding as inguinal colotomy, but it really seems to be much less than one would suppose from its apparent severity. The chief danger of this operation is shock. It is the only one I have met with so far, and is almost entirely due to hemorrhage. The patients are generally rather old, and they are already reduced by the disease. If the operator stopped to ligature every vessel as it was cut, the length of time employed would prove an equally fruitful source of shock. Expedition is necessary, and I think the best success is attained by bold and rapid operating, whilst the ready fingers of an assistant compress the vessels with sponges as they are cut.

In the fourth class the tumour can only be discovered on opening the abdomen. Supposing such a growth to be suitable for removal, I should deal with it by one of two methods, according to the condition of the patient and the accumulation of fæces above the stricture. The safer operation, suitable for those patients in which the symptoms of obstruction are pronounced, would be to doubly ligature and divide the bowel above the growth, taking the upper end out through a small separate wound in the inguinal region, where subsequently a tube could be inserted and an artificial anus established. Then excise the diseased portion of the rectum, and invaginate and close the lower end. If the patient were in better condition, and there were no great accumulation of fæces, I should simply excise the growth and approximate the cut ends with Murphy's large-sized metal button. This ought to be a favourable position in which to use it.

Mortality.—The number of deaths from the operation in 14 cases was 2, or equal to 14 per cent. Both occurred in somewhat unfavourable subjects operated upon by Kraske's method. If cases were selected the death-rate would be greatly reduced. Mr. Cripps records a death-rate of between 7 and 8 per cent., his cases including none operated upon by Kraske's method, but from reasons which may be gathered above I have declined operating in none but absolutely hopeless cases. The simpler ones all recovered.

Duration of Life.—Of 12 patients who recovered from the operation 6 have since died from recurrence of the growth, the period of death varying from ten months to two and a half years, and giving an average of exactly one year and eight months. Of the 6 still living, the time elapsed since the operation ranges between ten or more years and one year and a quarter, giving an average duration of between three and a half and four years. The absence of exactitude is due to the fact

that the earliest case left for work in America four years ago, hence, if still, living, it would be fourteen years since his operation. Most of the hospital cases who present themselves for treatment with cancer of the rectum have had symptoms of its presence for from nine months to a year, and sometimes longer. Now, what is their expectation of life? This is a question I am not prepared to answer definitely, but so far as I can gather from experience in my own practice and that of my friends, and from the results of colotomy, it would appear that the average expectation of life in those who are sufficiently bad to apply for relief cannot exceed a year even when colotomy is performed. Now, my cases of excision taken as they stand, including the whole 14 with 2 deaths, show an average period of life of upwards of two and a quarter years since the operation, which is probably more than double their expectation under any other treatment; and this without counting the fact that 6 patients, including some of the most hopeful, have a prospect of living for some years to come, and thus adding considerably to the success of these statistics. During their survival all my patients have returned to work, with the exception of two ladies, who had no work to do, so that the result of the operation has been not only a gain in life but a gain in usefulness, and also a gain in comfort.

Other Results.—One patient only suffered from stricture consequent upon the operation. In the earlier slight cases I followed Harrison Cripps in not stitching the bowel to the skin. Under these circumstances the funnel-shaped wound cicatrices, and is liable to contract and form a stricture. One case could retain fæces except when attacked with diarrhoea. Five cases suffered from more or less prolapse of the bowel and mucous discharge. One case had a preliminary colotomy done, so of course was not troubled with his rectum. In two cases the upper and lower parts of the bowel were approximated, and the normal characters of the rectum restored. I must quite dissent from the view expressed by some German writers that a new sphincter is developed, or that the act of defæcation can become normal again after the lower end of the rectum is excised. Solid motion gives no trouble; liquid always runs away. When the whole rectum is removed even solid motion is passed unconsciously. Hence the great value of Kraske's operation, with approximation.

Recurrence.—As in all other cases of carcinoma, unless taken very early recurrence is the rule, and the exceptions are not numerous in cancer of the rectum. One case was a genuine cure, having survived upwards of ten years. I think three others may also prove to be cures. But even if recurrence occurred in every case it would not influence the favourable view

I entertain of excision as compared with colotomy or simpler palliative measures, so long as the mortality of the operation continues low. And should it tend to rise it may at any time be met by a more rigid selection of cases; of late I have accepted quite 75 per cent. Recurrence is most frequent in the liver and lumbar glands, where it causes gradual exhaustion with but little pain. It has also a somewhat marked tendency to occur in the pelvic cellular tissue, where it is liable to invade the sacral plexus, and give rise to a painful sciatica. Contrasted with cancer of the tongue the recurrence is much more favourable, as the latter is just as distressing and dangerous to life in the neck as it was at first in the mouth.—*British Medical Journal*, March 9, 1895, p. 519.

ORGANS OF URINE AND GENERATION.

61.—NEPHRORRHAPHY FOR MOVABLE KIDNEY.

By GEORGE B. JOHNSON, M.D.,

Professor of Surgery in the Medical College of Virginia.

Nephrorrhaphy is not indicated in every case of dislocated kidney, but only in such cases as manifest distressing or dangerous symptoms. When gastro-intestinal disturbances impair the general health, when nervous symptoms are severe, when the dragging abdominal pains are constant, when disease of the other organs is simulated, when hydronephrosis is threatened, when one or more attacks of torsion have occurred, the operation is imperative. The method I have settled upon after a trial of several is as follows:—The subject is prepared as for abdominal section, purged with salts the day before, solid food withheld for two days preceding the operation, and the body cleansed with warm baths. On the evening before the affected side and back are shaved and scrubbed with green soap and water and a wet pad of bichloride applied. This remains on until the patient is put upon the operating table. This dressing is then removed and a final washing is practised. The patient is placed in a semi-prone position with a firm pillow or pad (preferably Edebohls), so as to render prominent the affected side, thus increasing the iliocostal space. The incision is then made, commencing a half-inch below the twelfth rib and towards the outer edge of the erector spinæ muscle. This is carried in a slightly oblique downward and outward direction to near the crest of the ilium. The bleeding, which is usually

trifling, should be checked as it occurs by fine ligatures, so as to keep the wound clear of blood and unhampered by the presence of the forceps. When the cut has reached the edge of the quadratus lumborum, the aponeurotic extension of the transversalis is severed when the finger reaches into the renal space. The hand of an assistant presses the kidney from the front into its proper bed. The fatty capsule is torn through and the kidney exposed through its entire length. The kidney is carefully examined both by inspection and palpation. I have often with perfect impunity delivered the kidney through the abdominal wound, which enables me to palpate the pelvis and upper end of the ureter. The aseptic finger is made to sweep about the kidney gently for the purpose of slightly irritating and disturbing its fatty bed. This I deem important as conducing to a certain amount of exudation, which renders the subsequent adhesions stronger. The kidney is next placed as nearly as possible in its normal position and a medium-sized suture in a curved needle (not a Hagedorn or one with severe cutting edges) passed first through the deeper portion of the cut walls, then well into the substance of the kidney, and finally through the other side of the wound. The ends of this suture are entrusted to an assistant, who makes enough traction to keep the kidney in the position desired. The fibrous capsule is now split on the convex exposed border and the margins slightly turned back, making a long, narrow band of exposed kidney substance. With fine silk and a small curved needle the reflected edges of the capsule are stitched to the deeper portion of the wound by interrupted sutures, usually four on a side. When these are snugly tied, the larger suture, which should be placed nearer the upper than the lower end of the kidney, is tied. Great care must here be practised in order that there shall be no considerable pressure from this suture, the aim of which is to give support and more securely fix the position of the kidney during the healing process. All the sutures should now be closely cut. The upper portion and middle of the lumbar wound, particularly that part traversed by the suture passing through the substance of the kidney, is closed by three or four deeply-placed interrupted sutures. The lower half of the wound should be packed with strips of iodoform gauze, the packing to be fitted snugly to the exposed part of the kidney and to fill well the open wound. An ample dressing of iodoform or sterilised gauze is placed over this, a firm compress over the kidney to support it, and these held securely in position by a binder.

I have gone into great detail concerning the technique of the operation, because I believe that success requires an observance of such details. I wish particularly to insist upon the treatment

of a part of the wound by the open method. This, in my opinion, adds much to the safety of the operation, as well as greatly enhances the result. The only case (my last) where I did not follow this plan of treatment gave me trouble by suppurating, and thus necessitated the reopening of the wound a week after the operation, and finally required packing.

The after-treatment is simple enough, the essential point being confinement in the bed on the back for four weeks, at the end of which time the adhesions are sufficiently firm to maintain the kidney in position.

In spite of my predilections for ether I am in the habit of using chloroform in this operation for reasons which are obvious.—*Annals of Surgery*, February, 1895, p. 133.

62.—CASTRATION FOR THE CURE OF HYPERTROPHIED PROSTATE.

By J. WILLIAM WHITE, M.D., Professor of Clinical Surgery
in the University of Pennsylvania.

The reception by the medical profession here and elsewhere of the suggestion made by me in June, 1893, that castration might be an effectual remedy for prostatic hypertrophy has been increasingly favourable. Up to that time no reference existed in surgical literature to the possibility of affecting the overgrowth by the removal of the testes. Since then 12 more or less successful cases have been published. It is not too much to say that, in connection with the further corroborative evidence that has been brought forward, they serve to establish the operation as a rational and justifiable procedure. I have already reviewed the history of eight of these cases. The other four may be briefly summarised as follows:—

Mayer and Haenel operated, May 16, 1894, on a man about 70, with a much enlarged prostate, cystitis, and ammoniacal urine, tenesmus and toxæmia, in whom catheterism was becoming impossible on account of the pain it excited. There were several ounces of residual urine. Some improvement was noted in a few days; after two weeks the tonicity of the bladder began to return; in three weeks the urine was nearly normal; and in six weeks the prostate had shrunk to its proper dimensions, the bladder emptied itself completely, no catheter being required; urination was performed only once in four hours, and the urine was limpid and of acid reaction. These authors discuss the apparent analogy between the prostatic and the uterine fibro-myomata (which was what led me to the

researches that resulted in my suggesting the operation to the profession), mention my confirmatory experiments on dogs (which gave a definite and scientific basis for the suggestion), and after quoting Ramm's cases, arrive at conclusions entirely favourable to the method on account of its comparative safety and the ease of its performance as contrasted with the other operative measures directed against the hypertrophied prostate. Moullin reported the case of a man, about 81, with complete retention due to a prostatic enlargement the size of an orange, with cystitis and failure of general health, and in whom catheterisation was impossible, the attempts being followed by hemorrhage. Suprapubic aspiration was necessary on several occasions. After the castration the improvement was almost immediate, the prostate was appreciably smaller in ten days, and in three weeks had practically disappeared. An ordinary catheter could be readily passed. The bladder had begun to regain power. The urine was nearly normal. J. I. Thomas reports a case in which castration in a patient of 65, who had had symptoms of prostatic hypertrophy for fifteen years, had caused "considerable improvement." He adds:—"Urination which was formerly very frequent, is now necessary but three times a day." This report was made very soon after the operation, and no further details are given. B. Ricketts, of Cincinnati, reports a case in which he did this operation in a patient, about 74, who left the hospital at the end of the sixth day. On the second day after the operation the patient could urinate with greater ease, and the pain was so slight that he said he had not had so much comfort for a year; he could sleep four hours at a time during the night, whereas formerly he had been getting up once every hour, and had been urinating thirty times daily. The condition continued to improve. A further report was promised later. Launois publishes an interesting memoir reviewing the whole subject and bringing forward some collateral evidence, chiefly from the works of Godard, showing that monorchidism is apt to be associated with unilateral atrophy of the prostate, and giving instances of such atrophy after gonorrhoeal epididymitis, and of complete atrophy in cryptorchis, after syphilis, sarcocele, &c. He too concludes that the operation is of distinct curative value.

What might be called a supplementary indication for the operation, will, I think, be found in some cases in which with the usual urinary symptoms of prostatic overgrowth there are others referable to the sexual system, and often causing more serious trouble. Every genito-urinary specialist is familiar with instances of "psychopathia sexualis" in old men, but not everyone realises that they often have a physical rather than

a psychic basis, and depend on the prostatic congestion and excitation incident to the early stages of hypertrophy. In one of Hayne's cases the relief experienced in this direction was as marked as that derived from the disappearance of obstruction.

The details of several successful operations performed here (Philadelphia) will shortly be published.

The objections to the operation met with in practice have in my experience arisen altogether from the sentimental side of the question. As Lanois says, men even of advanced age, "*aimant à se faire illusion*," insist upon retaining their testicles as evidence of a "*virilité passée*." This applies of course with especial force to the cases in which dysuria is slight or catheterism easy, the general health remaining unaffected. As to the more serious cases such as those noted above, we have now reached a point in certainty of knowledge where we can promise results at least equivalent to those obtained by oöphorectomy for uterine fibroids, and I believe that the assertion I made in my original paper was correct, and that "there will be no lack of cases willing to submit to an operation almost painless, with a low mortality, and followed by no such unpleasant conditions as accompany persistent fistulous tracts, either suprapubic or perineal, even although the operation carries with it the certainty of sacrificing whatever sexual power has survived the excessive and often intolerable suffering of such patients."—*British Medical Journal*, January 5, 1895, p. 12.

63.—THE MORTALITY OF THE VARIOUS OPERATIONS FOR THE REMOVAL OF VESICAL CALCULUS, ESPECIALLY IN CHILDREN.

By GILBERT BARLING, M.B., F.R.C.S.,

Surgeon to the Birmingham General Hospital; Professor of
Surgery in Mason College.

The period covered by my statistics is five years, from 1888 to 1892 inclusive, and they are from the records of six metropolitan and seven provincial hospitals, the majority being medical schools. It would have been unfair to have gone back to an earlier period than that selected, as the high operation was then, so to put it, on probation.

Summed up the results are these:—Litholapaxy—300 cases, 24 deaths=1 in 12·5=a mortality of 8 per cent. Suprapubic

lithotomy—169 cases, 26 deaths=1 in 6·5=a mortality of 15·4 per cent. Lateral lithotomy—96 cases, 5 deaths=1 in 19·2=a mortality of 5·2 per cent. Median lithotomy—48 cases, 6 deaths=1 in 8=a mortality of 12·5 per cent. Adding these together we get a total number of cases 613, deaths 61=1 in 10=a mortality of 10 per cent. on the series. A few comments are necessary. Litholapaxy deals with the most favourable cases of stone, namely, those in which the calculus is of small or moderate size, and its best results are shown under the age of 20 and above 50.

The suprapubic mortality is considerable. This is not surprising in old people, who bear any cutting operation badly, and should therefore as far as possible be reserved for crushing. But in children the death-rate is so considerable as to call for careful consideration.

It should be noted, with regard to the general mortality after suprapubic section, that 4 deaths were not directly due to it but rather to some antecedent proceeding. In three of the cases lithotrity and in 1 case lateral lithotomy had been attempted, and failing, the high operation was immediately performed, 3 of the patients dying of shock. This leaves 22 deaths to be accounted for—7 are ascribed to various inflammatory and degenerative changes in the kidneys, 3 to peritonitis, 2 to shock, 2 to septicæmia, 1 each to cellulitis, bronchitis, pneumonia, scarlet fever, secondary hæmorrhage, and exhaustion; in 2 no cause is given.

The deaths due to dilated and infective changes in the kidneys are numerous, as was to be expected from the fact that many of the patients were reserved for this particular operation owing to their age and the size of the stone.

I now propose to contrast the mortality of modern operations for stone with that which prevailed when only lateral lithotomy was practised. In an Appendix to his Introduction to the Catalogue of the Collection of Calculi of the Bladder in the College of Surgeons Museum, Sir Henry Thompson gives an analysis of stone cases, all operated on by lateral lithotomy in various metropolitan and provincial hospitals between 1790 and 1840. The total number of Thompson's cases was 1,827, the deaths were 229, the rate of mortality being therefore 12·5 per cent. With this may be contrasted the death-rate from the various operations 1888 to 1892:—Number of cases 613, deaths 61, mortality 10 per cent., a reduction of 2·5 per cent. as compared with the previous period. It is at first sight disappointing to find that the reduction in mortality is not greater, but the figures in detail show that in Thompson's tables the majority of the patients were considerably younger than those collected in mine. Doubtless in those early days

many elderly patients were advised to endure their suffering rather than face the risk of lateral lithotomy—then the only resource—and this must affect the comparative mortality. I should like to have compared each decennial period of Thompson's cases with my own to show the mortality at different ages, but this is not possible from the way in which his statistics are compiled. Nevertheless, some further comparison is possible and of value.

THOMPSON'S TABLES. (*Operations from 1790 to 1840.*)

Age 1 to 11 inclusive ..	850 cases, 49 deaths, 1 in 17= 6.0 per cent. mortality.
„ 1 to 48 „ ..	1,365 „ 114 „ 1 in 12= 8.3 „ „
„ 49 and upwards ..	462 „ 115 „ 1 in 4=25.0 „ „
At all ages ..	1,827 „ 229 „ 1 in 8=12.5 „ „

MY OWN TABLES. (*Operations from 1888 to 1892.*)

Age under 10 ..	166 cases, 14 deaths, 1 in 11.9= 8.4 per cent. mortality.
„ „ 50 ..	377 „ 32 „ 1 in 11.8= 8.4 „ „
„ 50 and upwards ..	236 „ 29 „ 1 in 8.0=12.5 „ „
At all ages ..	613 „ 61 „ 1 in 10.0=10.0 „ „

Comparison of these figures emphasises what I have already pointed out, namely, that the general mortality of stone operations is reduced. It shows further that the reduction is due to the greater safety with which operations are now performed after 50 years of age; but it appears to show also unmistakably that operations for stone in children are attended with a greater mortality than they were fifty years ago. This, if it be true—and I have endeavoured to avoid putting any unfair construction on the figures—can only be due to the introduction of lithotrity and suprapubic section.

This further inquiry, therefore, confirms the opinion I expressed in my former paper already referred to that lateral lithotomy and litholapaxy are safer operations in children than the suprapubic is at present, and that if the last-mentioned is to be adopted as a routine procedure in the future, it must be shown that it gives better results than it does now.

To return for a moment to the mortality of suprapubic section in adults. I can only speak of general impressions gathered from the statistics and from my own operations. So far as these go, they leave no doubt in my mind that where a cutting operation has to be performed on an elderly person, say about 50, suprapubic section is safer than perineal, but it should be resorted to only when lithotrity is for any reason unadvisable. In the middle period of life, although I personally prefer to perform litholapaxy, I believe the mortality of the three operations is very similar. I have not seen a permanent urinary fistula left after any suprapubic section.—*British Medical Journal*, March 9, 1895, p. 523.

64.—PRIMARY TUBERCULOSIS OF THE GENITO-URINARY ORGANS.

By FRANCIS S. WATSON, M.D., Boston.

The reason, that more than any other leads genito-urinary tuberculosis to be overlooked, is the readiness to rest content with a diagnosis of "idiopathic cystitis" in cases in which pyuria and irritable bladder are the conspicuous symptoms, and in which a few microscopic examinations of the urinary sediment fail to show casts, renal epithelium, or crystals, the latter fact being often assumed, under these circumstances, to free the kidneys from suspicion of being involved. "Idiopathic cystitis" in the sense of a spontaneously occurring inflammation of the mucous membrane of the bladder—an inflammation without a well-defined cause, that is to say—I do not believe exists. If inquiry is pushed far enough, some conditions of which such as the following are the most familiar examples, will be found to have originated the trouble:—gonorrhœa; stone; lithiasis; stricture; prostatic hypertrophy, and its consequences; the use of instruments; acute over distension of the bladder, such as occurs sometimes in childbirth, or by voluntary effort, as with the insane; profound narcosis from opium or alcohol; the ingestion of certain irritating drugs, for example, cantharides; in connection with certain diseases of the spinal cord, &c. If, in the absence of these or other well-defined causes, a patient has symptoms of cystitis, it is strongly suggestive of tuberculous disease in the genito-urinary tract, probably located in the kidneys, the prostate, the seminal vesicles, or possibly in the bladder itself; but this is thought to be rarely the starting-point of the disease.

It should be borne in mind that bladder irritability is sometimes the most conspicuous sign of certain conditions in the kidney, the bladder itself being at the time free from disease. This is notably true of calculous pyelitis, of malignant and of tuberculous disease of the kidney. It is also seen in connection with simple, and more markedly with tuberculous, inflammation of the seminal vesicles and the prostate.

With regard to the method of entrance of tubercle bacilli and their lodgment in the genito-urinary tract, I will not speak, but merely note that the disease may take any of its organs as a starting-point, and that in the majority of cases in the male it begins in the epididymis, testis or prostate, and ascends more or less rapidly to the other organs. It rarely begins in the bladder; more frequently than in the latter in the kidneys, and descends.

The disease may remain localised in the epididymis or testis for a long time (several years), but it is more usual for the extension to take place more rapidly ; and in some cases its progress is very rapid. The presence of a hard lump in one epididymis, especially if the patient has never had gonorrhœa or received an injury, is suggestive of its being of tuberculous nature, this suspicion is heightened if the urinary sediment contains, pretty constantly, blood-globules, and is further increased if there is irritability of the bladder.

Bryson has called attention to the existence of small, shot-like bodies to be felt in the hilus of the testis as the first evidence of tuberculous deposit in these organs. They pass unnoticed by the patient, and often by the physician.

Induration of the seminal vesicles and an uneven, furrowed prostate, or small area of softening and indistinct fluctuation in the prostate, can often be felt by rectal examination, when the disease occupies these organs. Cabot calls attention to the presence of hard, pea-like bodies to be felt in the prostate by rectal examination, in some cases as being suggestive of tuberculosis in that organ.

These features are dwelt on in order to emphasise the importance of systematic examination of the epididymes, testes, seminal vesicles and prostate in every case.

Blood in the urine is often the first sign of the disease. It is generally seen in the form of small clots. It is most noticeable in the early stages of the disease, as a rule. It is rarely profuse, as it generally is with tumours of the bladder and in some cases of malignant disease of the kidney. It is not increased by exercise, as it is apt to be in cases of stone, nor by instrumental examination of the bladder, as it often is in cases of bladder tumours. I have never seen blood-globules absent from the urine on microscopic examination at any time. In one of my cases blood never appeared except microscopically. Exceptionally there are profuse hemorrhages.

Pus in the urine is more rarely the first symptom, but it is often coincident with blood when the latter is first noticed. When it arises from the bladder, it is continuously present ; when from the kidney, it is often variable in quantity ; and if only one kidney be involved and its ureter becomes plugged, pus may disappear for a time, the freeing of the ureter being followed by its reappearance in the urine in large quantity. Occasionally small masses of caseous matter are seen in the urine ; and it is to the lodgment of these or of a blood-clot in the ureter that its temporary plugging is due. As a rule, these plugs are dissolved or pressed onward into the bladder too soon to allow of the formation of a very marked pyonephrosis, but sometimes they are too large and firm to be so readily pushed

down, and an extensive pyonephrosis is produced, advancing sometimes to the point of threatening rupture of the pelvis of the kidney. Occasionally such stoppage of the ureters will produce attacks of renal colic simulating those produced by renal calculus.

There are two points in connection with the pyuria of renal and bladder tuberculosis which I have observed in several cases, namely, that the pus has a peculiar dirty-gray colour, and that these tuberculous urines even when loaded with pus, do not, in many cases, have the exceedingly foul smell that is often noticed in the urines of some cases of chronic cystitis in connection with prostatic hypertrophy, and more especially of malignant disease of the kidney and bladder.

Unlike blood the pus generally increases in quantity as the disease progresses, although in some instances it undergoes marked temporary diminution. Painful and frequent urination are also early symptoms. Very often the first thing that attracts the patient's notice is a slight increase in frequency of, and a teasing desire for, urination; this may precede the appearance of pus or blood in the urine by several weeks or months and be the only symptom. There is nothing especially characteristic with regard to the pain in the earlier stages; later, however, the occurrence of very marked remissions, when they take place, as they do in some cases without any apparent cause, is a very suggestive feature. These remissions of pain are usually associated with a diminution of pus in the urine. Unlike the pain in cases of stone, that of tuberculosis, when the bladder is involved, is worst when the bladder is full; and it is not so markedly increased by exercise as it is in stone.

Bladder irritability is often very marked when the disease is still confined to the kidney; and it is this, as I have said, which sometimes causes the mistakes in diagnosis, through considering the trouble to be an ordinary cystitis.

Before leaving the symptom of pain, let me say that as the disease advances it becomes almost intolerable; it is worse than that of stone because almost incessant. I think I have never seen greater suffering, except in cases of cancer of the bladder or prostate; and yet, even up to the last, there continue to be unexcepted periods of relief in some cases.

Two strikingly characteristic features of renal and bladder tuberculosis are (1) the extraordinary remissions in the severity of many or all the symptoms, and (2) the entire failure of the ordinary medicinal remedies to relieve the bladder symptoms, and the positive aggravation of the latter by local treatment, such as bladder washes, deep urethral injections, or the passage of instruments. The remissions are very deceptive, and often arise false hopes.

There is one other thing that I have observed, and that is, the comparatively rare occurrence of chills and profuse sweats that are so frequently seen in connection with cases of suppurative nephritis, of the so-called surgical kidney. In concluding these notes on some of the especially suggestive symptoms of this disease, let me repeat what I said at first, that the appearance in the manner described of bladder irritability, of blood in the urine, and of pus, is, in the absence of any of the special causes mentioned, particularly if occurring in a male under fifty years of age, highly suggestive of renal or bladder tuberculosis. To establish the diagnosis, there remain the discovery of the tubercle bacilli, and the cystoscopic examination of the bladder.—*The Boston Medical and Surgical Journal*, February 7, 1895, p. 121.

AFFECTIONS OF THE EYE AND EAR, &c.

65.—ON THE CARE OF THE EAR DURING THE COURSE OF THE EXANTHEMATA.

By WALKER DOWNIE, M.B.,

Surgeon to Nose and Throat Department of the Western Infirmary, Glasgow.

When a child is suffering from measles or scarlet fever he is confined to bed day and night, and during the greater part of the twenty-four hours he lies in the dorsal position. This position favours the retention of secretions within the hollow of the naso-pharynx, and, in addition, from the altered direction of the Eustachian tubes, the inflammatory products within the middle ear could not readily escape, even supposing the tube to remain patent. The consequences are that the catarrhal inflammation accompanying measles and scarlet fever is soon followed by suppuration, the lining membrane of the tympanum becomes necrosed, the tympanic membrane is ruptured, and the bony cells surrounding and communicating with the tympanum are filled with the products of suppuration.

From the very beginning of the illness, where there are any catarrhal symptoms, the patient should be directed to use the handkerchief frequently and strongly, and the nurse in attendance should see this carried out. By this means nasal discharge is got rid of through the anterior nares, and the air, in passing with considerable force from the lungs towards the nose, helps to loosen and dislodge any discharge lying within the naso-pharynx.

If the child is too young to do this efficiently, or if there is enlargement of the faucial tonsils and adenoid vegetations in the naso-pharynx, Politzer's inflation bag should be resorted to. In performing inflation the child may be in the recumbent or sitting position, and he is directed to open his mouth and to breathe out strongly, or to say "ho!" or "hick!" and while in the act of doing either the air is forced along the nose. The quantity of secretion dislodged and thrown into the mouth by this proceeding will astonish those who have not used the bag under such circumstances, and convince them of the necessity of having the air-way cleared. One or other of those methods should be adopted in every case, and without waiting for the appearance of symptoms pointing to implications of the ear. Where, on the other hand, there is dulness of hearing, sounds or pains in the ears, &c., resort to inflation should never be delayed, as those symptoms point to closure of the Eustachian tubes, and to retention of secretion within the middle ear, relief from which may be instantaneously secured in the majority of cases by complete inflation.

Some hesitate to use Politzer's bag while the aural passages are inflamed lest rupture of the membrane should result. This rarely happens, and I speak only after considerable experience, but even when it does occur no harm follows. The resulting perforation is slit-like, and it heals readily.

When the case does not come under observation until a later stage, and the pain in the ear is acute, and should immediate relief not be obtained from inflation, the tympanic membrane should be examined and incised without delay, especially if there be a sudden rise in temperature without any other explanation.

Paracentesis of the membrane, or myringotomy, as this little operation is termed, is sadly overlooked; it is certainly not had recourse to in anything like the number of cases in which it is called for. And yet it is a very simple and safe operation when done under appropriate conditions. These conditions are (1) to have the head securely held; (2) to have the membrane clearly visible and brightly illuminated; (3) to use an arrow-shaped paracentesis knife or myringotome with a shoulder; and (4) to puncture the membrane in its lower and posterior part where bulging is usually most marked. The result again is a slit-like opening which, after permitting of the thorough removal of the pent-up secretion, readily heals. This operation performed timeously is of incalculable benefit to the patient, for it not only relieves the immediate pain, but saves the deeper structures of the ear, and prevents the misery of a chronic otorrhœa with its numerous attendant risks.—*British Medical Journal*, November 24, 1894, p. 1163.

66.—ON THE TREATMENT OF OPHTHALMIA
NEONATORUM.

By JOHN TWEEDY, F.R.C.S., Professor of Ophthalmic Surgery
in University College, London.

Whenever there is the slightest suspicion of any infective character about the maternal discharges, preventive measures should be adopted immediately after the birth of the child. The outsides of the eyelids should be gently and carefully washed with lint or clean rags moistened with plain and recently boiled water, and then a solution of nitrate of silver, 10 grains to the ounce, dropped on the lids over the palpebral fissure. After wiping the lids again with a piece of dry rag, the lids should be carefully separated, and a few drops of the nitrate solution, trickled well inside both lids, made to flow freely over the whole surface of the conjunctiva. If this be carefully and thoroughly done, few cases of ophthalmia neonatorum will occur. If the disease does begin, the first sign of anything wrong is—two or three days after birth the eyes look weak and watery; there is increased secretion of tears and mucus, and the lids are glued after sleep. The margins of the lids become red and swollen, and the eyeball is bloodshot, and thin, yellowish serous fluid, not unlike bile, escapes from the conjunctival sac when the lids are opened. In a day or two the redness and swelling of the lids increase, the eye becomes very red, the bulbar and palpebral conjunctiva vascular and swollen, and the serous discharge is replaced by thicker muco-pus, which soon becomes purulent. So that in a few days there is a copious discharge of thick yellow pus.

What is to be the treatment? This will depend somewhat upon the stage of the disease. In the earlier stages some authorities advise mild and simple measures, and are content to use weak lotions of perchloride of mercury, boric acid, or alum, or something of that kind, deeming it unnecessary and undesirable as yet to employ any very active measures. This is not my opinion, and is not in accord with my experience. The more I see of these cases, the more am I disposed to use vigorous measures as soon as there is reason to believe that the case is genuine purulent ophthalmia. From the beginning I should institute what is called the nitrate of silver treatment, though the solution used in the serous stage should, perhaps, be less strong than in the purulent stage—say 5 grains in the former and 10 grains to the ounce in the latter.

Some precautions are necessary to obtain full efficiency of the remedy, and care should be taken not to neutralise or decompose the nitrate of silver solution either by using a soiled

brush or allowing plain water or so-called "antiseptics" to come in contact with it. A little of the solution should be poured into a small wide-mouth bottle or into a minim medicine measure; the brush should, before being used, be wiped on dry lint or rag, and only distilled water should be used to wash off the excess of the solution from the conjunctiva; otherwise the nitrate of silver may be decomposed and its potency destroyed. Before applying the nitrate solution, all discharge should be gently removed from the outside of the lids and from the conjunctival sac by means of pledgets of lint or rag. The lids should then be thoroughly everted, so as to expose the swollen tarsal and lacunar portions of the conjunctiva; and then the exposed membrane should be painted with a camel-hair pencil well moistened in the nitrate solution; especial care being taken to make the application as far back as possible, because it is from this part that the pus is chiefly secreted. Most authorities recommend that any excess of the silver solution should be neutralised by means of a solution of salt; but this is, I think, neither necessary nor desirable, as any spare solution may be usefully employed in destroying the virus lying in the deeper parts of the conjunctival sac.

The application may or may not have to be repeated in a day or two—I am speaking of the earliest stage only at present. One application may stop the disease short, or at least destroy its virulence. Meanwhile the nurse or attendant should employ some lotion, dropped inside the lids every two or three hours; and perhaps there is nothing better than either perchloride of mercury (1 in 5,000) or chloride of zinc, one or two grains to an ounce.

I may parenthetically remark that some surgeons use alum lotion; but though this is often very useful, it is not, I believe, always safe. I have seen several cases in which perforation of the cornea has been favoured by the use of alum. In all forms of conjunctivitis, and especially the more severe, the epithelium of the cornea is apt to become soft and eroded; and this event constitutes one of the great dangers in purulent ophthalmia. When there is erosion of the corneal epithelium, the solution of alum comes in contact with the corneal cement and dissolves it, thereby separating the corneal fibrillæ and favouring perforation of the cornea. There is another medicament which has lately come into vogue in purulent ophthalmia to which I think the same objection applies—namely, solutions of permanganate of potash. Solutions of permanganate of potash are sometimes employed by histologists to dissolve the corneal cement in making preparations of corneal fibrillæ; and though I cannot say I have actually seen any damage arise from the use of permanganate of potash, I believe the danger exists. Perchloride

of mercury or chloride of zinc are quite as efficient, and they are not open to the same objections. If there be erosion of the corneal epithelium, the application of either of these medicaments causes coagulation of the albuminous material in the floor of the erosions, and thereby forms a limiting membrane. Nitrate of silver does the same.

If the disease has passed beyond the serous stage and has reached the purulent stage, the same line of treatment is to be employed only more assiduously. Instead of the 5-grain solution of silver nitrate, a 10-grain solution should be employed. The lids are to be well everted, all the pus wiped away, the conjunctiva painted in the same way and with the same precautions as in the earlier stages. But one application will certainly not suffice now. It becomes a question, therefore, how often and when the applications should be repeated. This will depend very much upon the severity of the inflammation and the amount of pus. The usual course is somewhat as follows:—We make an application, and find for the first few hours there is a certain increase of irritation, but there is less pus and more serum. Then for some hours the eyes seem to be better, the amount of pus is less, the pain is less, and the general symptoms are much improved. There is a period of remission. A few hours later the case begins to relapse: the inflammation increases and the pus becomes more copious, and the pain and other symptoms return. The time for the reapplication of the nitrate of silver is at the end of that stage of melioration and remission, or just at the beginning of the stage of recrudescence. It may therefore be necessary to repeat the application daily, or on every second day, or at longer intervals, according to the severity of the disease. In any case, as the disease improves the intervals may be lengthened and ultimately the applications discontinued; though it will be necessary to bathe the eyes with mild astringent and antiseptic lotions long after the indications for applying stronger nitrate of silver solutions have disappeared.

There is one other question—that is: What is to be done when corneal complications arise, when ulcers have formed, and the cornea is infiltrated and threatening to break down? Are we still to use nitrate of silver? Certainly, and, if possible, more vigorously than ever, because it is the inflammation of the conjunctiva and the infective character of the fluids which cause the damage to the cornea; hence we must combat the inflammation and lessen the virulence of the infective material. Nothing will accomplish the double purpose so well as applications of nitrate of silver solution. Indeed, it would be well to paint the ulcers of the cornea also. In my own practice when the cornea is implicated I usually substitute, for any other lotions which may have been used, solutions of sulphate of quinine (four grains

to the ounce, made with the smallest quantity of dilute sulphuric acid that will keep the quinine well in solution). Quinine thus prepared is a powerful antiseptic, and, unlike most other antiseptics, it is also antiphlogistic. The quinine is, of course, only to be used in the intervals, and not as a substitute for the nitrate of silver; for nothing, I believe, can be relied upon save the eyes in purulent ophthalmia, whether in infants or adults, except the intelligent, determined and systematic use of the nitrate of silver treatment.—*The Practitioner*, March, 1895, p. 203.

67.—ON SUPPURATION IN THE ACCESSORY CAVITIES OF THE NOSE.

By GREVILLE MACDONALD, M.D., Physician to the Hospital for Diseases of the Throat, London.

Many of the worst cases with which we have to contend begin with suppurative inflammation of one or more ethmoidal cell, either during an attack of general rhinitis or independently. The usual story is an attack of sharp supraorbital neuralgia, lasting for two or three days, and then relieved by a flow of pus from the nose, continuing from one to twelve or more hours, often ceasing either not to appear again, or recurring after a longer or shorter interval after fresh cold taking, and in only too many cases becoming chronic. In this case the mischief spreads; other cells become involved from infection, and granulation tissue springs up from a bed of ulcerating bone. The bony dissepiments are absorbed in the process, the granulation tissue and the accompanying suppuration extend in various directions, more especially through the thin party walls between the ethmoidal attics and the roof of the large chamber in the superior maxilla. Indeed, the walls in this locality often consist solely of mucous membrane, and sometimes natural openings may be found. In this way we may have empyema of the antrum arising in association with suppuration of the ethmoidal cells. But more than this, the inner wall of the infundibulum may become similarly absorbed, the passage into the frontal sinus may become blocked with granulations, and septic inflammation may pass upwards into this important accessory cavity. Indeed, the whole history of these cases may be very accurately compared to the course of similar disease in the tympanum—the initial abscess with earache, relieved as soon as the pus gains an exit through the tympanic membrane, the cicatrization of the latter, the liability to repetition, in the course of time leading to chronic otorrhoea and proliferation of

granulation tissue ; while further, the extension of the mischief into the accessory cavities of the ear completes the analogy. A great practical difference exists, however, in the dangers attending the ear disease, owing to the neighbourhood of large vessels and their becoming involved in the septic process, as well as in the fact that in this region the surgery is comparatively easy and attended with the happiest results ; while in the case of the nose, the danger of the mischief extending beyond its usual limits is comparatively slight, and the surgery is extremely difficult and often unsatisfactory. Yet in both ear and nose there is probably equal danger of the mischief extending to the cranial cavity and the meninges of the brain.

The association of polypus with suppuration is precisely the same in each case, the so-called polypi being no more than more or less organised granulation tissue, over which the epithelium has or has not, spread to a greater or less extent, the new tissue in the meantime becoming oedematous and more or less fibrous in character. In the nose, the supply of mucus being more free, the tendency is greater for the growths to absorb water by a process of endosmosis, and to become consequently more translucent and colourless.

In point of diagnosis, all I would insist upon is the importance of realising the fact that where we have suppuration in the nose together with granulation tissue or polypi in the middle meatus, we can seldom at first sight be sure of the full extent of the disease, and must therefore be guarded in our prognosis. I have not infrequently seen cases where suppuration in the antrum was supposed to comprise the whole disease, and the patient promised a cure upon its evacuation, whereas the anterior ethmoidal cells, and possibly also the frontal sinus, were quite as much at fault ; or, on the other hand, cases which had long been under a course of treatment for the so-called "necrosing ethmoiditis," where the antrum had been overlooked, although the prime source of the profuse suppuration.

I cannot refrain from remarking that much of the disagreement among us as to the etiology of empyema of the antrum arises from the fact that we do not all recognise the frequent coexistence of ethmoidal disease and caries of the middle meatus with pus in the antrum.

But the association of suppuration of the frontal sinus with ethmoidal and antral disease is a point that I think may well repay discussion, so difficult is the diagnosis, except, of course, in cases of acute abscess and retention. In all the cases that I have seen or in which I have suspected the frontal sinus to be involved, there has been coexisting suppuration of both the ethmoidal region and the antrum ; and practically I may assert that I have never been able to diagnose positively the condition

until the discharge of pus has been arrested, or at any rate greatly modified, by treatment of the coexisting sources of the suppuration. The diagnosis is indeed the more difficult in that the very symptom upon which we most rely as proof of the presence of pus in the antrum, namely, the augmented flow on bending the head forwards, may be presented, even to a striking degree, in empyema of the frontal sinus, and even after the antrum has been proved to be free of any pus whatever; and I must confess to a strong suspicion that in these complicated cases where the suppurative mischief is not confined to any one region, the frontal sinus may be far more frequently involved than we have as yet means of ascertaining.

In speaking of the treatment of these affections I am always careful to impress upon my students the fact that there is little to be said beyond the inculcation of ordinary surgical principles. In the first place we aim at securing free drainage, which in the case of the antrum is easily enough provided for, but in the case of the ethmoidal region may prove exceedingly tedious to ensure. All polypi and granulation tissue must be removed as impediments to free drainage, while it may prove necessary to remove a greater or less portion of the middle turbinated body. As a destructive agent in these cases I prefer chemical caustics to the incandescent wire, seeing that the presence of a large quantity of pus and mucus in which the granulations are so generally imbedded is apt to induce scalding of more or less extensive areas, owing to the generation of steam. Thorough irrigation with antiseptic lotions frequently and forcibly applied is of essential service. Lately I have used, with enough success to warrant further experiment, a 25 per cent. solution of peroxide of hydrogen, made by Messrs. McKesson & Robbins, of New York, and called by them pyrozone. It is said to be caustic, although it produces no destruction of granulations; but it destroys all pus, and probably its putrefactive accompaniments. It is applied in small quantities on a mop of cotton wool tightly wrapped round a probe, and can be safely thrust deeply into all the suppurating sinuses and cells, with the production of a violent ebullition of oxygen, which rapidly fills the fossæ with a tenacious froth. If applied in too large a quantity at a time the sudden liberation of gas may produce enough tension to give pain; but used cautiously, and with cocaine, it is absolutely free from objection, and certainly has some, if not considerable, power in reducing the quantity of pus.

There is one other point in the treatment of suppuration confined to the ethmoidal region to which I wish to draw your attention, and with which I have had some success. By allowing the head to hang backwards over the end of a couch, so as to

assume an inverted position, it is possible to fill up completely the nasal cavities with fluid. By using a non-irritating antiseptic lotion, such as a 5 per cent. solution of boroglyceride, and pouring it into the anterior nares while the head is thus inverted, we can ensure the summit of the nasal cavities being thoroughly irrigated, and thus washed of their retained secretion. After a little practice a patient will be able to keep his head in this position for fifteen or twenty minutes at a time, although it always entails more or less headache afterwards. In one case at least it has completely arrested suppuration of some fifteen or more years' duration, which had defied more ordinary lines of treatment; and in another I believe the results have been quite as striking; but it is a mode of treatment that should not be attempted except while the patient is closely under observation. I have known it induce very severe neuralgia, and in one case the temperature rose immediately afterwards to 103° F., the patient suffering very acutely; but although we did not venture a repetition of the process in this patient, the single attempt produced such striking amelioration of the symptoms that he declared himself cured.

There is yet one point in the treatment of these affections. It is implied in the questions as to how far we may venture to leave alone ethmoidal and frontal suppuration, provided there is fairly free drainage; or, on the other hand, as to how far it is incumbent on us to urge upon our patient the necessity of a course of treatment full of inconvenience to himself, necessarily extending over a very considerable length of time, and not absolutely certain in its results. What is the actual danger in leaving the disease untreated? Exactly how great is the risk of meningitis? Is surgical treatment—say, of the cribriform plate—in itself devoid of risks; and may we not, in our anxiety to attack the malady, actually induce that which we seek to forestall? These seem to me questions of vital importance which each of us has to ask himself before undertaking any case. For my part, I am inclined to think that rather than put before our patient the actual risks which he is incurring by leaving the catarrh, as he calls it, untreated, which risks are apparently not great, and which we cannot in every case be certain of our ability to eradicate—I am inclined to think, I say, that rather than fill his mind with fears which might never become substantiated, it were, perhaps, wiser in his interests to leave the disease to take its course, contenting ourselves with draining and irrigating, so as to reduce the dangers to a minimum.—*British Medical Journal*, December 15, 1894, p. 1358.

Obstetrics and Gynæcology.

68.—SYMPHYSIOTOMY.

By JAMES M. JACKSON, M.D.

Symphysiotomy was first performed by Sigault, in Paris, in 1774. The mother and child both survived. This good result naturally enough lead many operators, especially amongst the Italians, to attempt the operation. The subsequent results were so bad and the mortality so great that it was finally abandoned, to be revived in 1866 by Morisani and Novi of Naples, with some degree of success. Three years ago the operation made its exit again from Italy and was taken up by Zweifel, Freund and Pinarch. Sufficient time has not elapsed since the revival of the operation in 1890 and 1891 for us to form an honest estimate of the ultimate result, but enough cases have been reported to convince one that it is in reality a very serious operation.

The operation is never done until the os uteri is nearly or fully dilated and until high forceps have been attempted,—never after attempt at version. Owing to the great liability to sepsis, the utmost care must be taken in rendering the lower part of the abdominal wall and vagina as aseptic as possible. An incision is made over the symphysis, extending upwards far enough to permit the operator to insert a finger back of the symphysis. Short lateral incisions are made at the lower end of the wound, and the fascia freed from its attachment to the pubes. The urethra is held to one side by inserting a stiff catheter. Then with a blunt-pointed, slightly-curved bistoury the symphysis is divided by cutting downward and backward. The sub-pubic ligament must also be divided in order to get sufficient separation. The pubic bones then spread apart a varying distance, but should not be allowed to separate more than eight centimetres, lest the sacro-iliac synchondrosis be ruptured. Up to eight centimetres there is little or no danger, as the articulation between ilium and sacrum is now known to be a true joint capable of slight movement. The head sinks at once into the pelvis.

Another great danger at this point is hemorrhage from the prevesical space thus opened. Vessels here cannot be tied and deep stitches do but little good, so that there is nothing left to do but pack with gauze. If this is not sufficient counter-pressure may be made by packing the vagina.

We may wait for a spontaneous delivery or apply forceps and deliver at once. Zweifel recommends waiting even twenty-four hours, if necessary, providing the foetal heart-sounds are good. A spontaneous delivery is of advantage because there is likely to be less damage done than by artificial delivery. If, after a reasonable time has elapsed without advance of head, or if the foetal heart-sounds give warning of danger, forceps should be applied. During the delivery the pelvis should be held by assistants lest too great a separation of symphysis takes place.

Delivery is usually easy, owing to the quite considerable increase in the diameters of the pelvis; but it is also very easy to wound the vagina at this stage, and herein lies one great objection to the operation. Several cases have been reported, and I have myself seen one case at autopsy, where the anterior wall was so torn that the finger could be passed from above the symphysis through into the vagina. The urethra in this case was also ruptured. Further, the sacro-iliac synchondrosis may be so stretched that a rupture of the capsule occurs, sometimes with direful results. In a pelvis which I once saw there was a large blood-clot in each joint, and also considerable pus, the woman having died of septicemia.

After delivery the symphysis is forced together, and may be held in place either by strips of adhesive plaster across the pelvis, or by suturing the pubic bones. Zweifel drills holes in each side of the symphysis and holds the ends together with catgut. With this a firm bandage should be worn. The prevesical space is always drained for one or two days.

The after treatment consists in keeping the woman quiet in bed for three weeks with knees tied together. She is then allowed to get up if union of the symphysis has taken place. For six months she is not allowed to do any heavy work or straining.

Another source of danger, which I may mention here, is from cystitis or even suprapubic fistula of the bladder, due to a pinching of the bladder wall between the ends of the symphysis.

Garrigues says that by division of the symphysis the distance from the middle of the promontory to the ends of the pubic bones increases 14 millemetres, and during birth an additional gain of 6 to 8 millimetres is made, or 20 to 22 millemetres in all, and that the increase in other diameters may amount to as much as 35 millimetres.

The disadvantages are as follows:—(1) Rupture of the sacro-iliac joints; now that we know that a separation of more than eight centimetres of the symphysis is liable to rupture the capsule of these joints, such an accident need hardly occur. (2) Rupture of soft parts of vagina and urethra. This is not a rare complication, and to my mind is a strong point against

the operation. (3) The danger of non-union of the symphysis. Zweifel reports three cases of waddling gait out of 23 symphyseotomies; Fritch, four out of four; Grandin, one out of four; and Garrigues, one out of two. In all of these 33 cases, nine had disturbed locomotion. (4) The length of time required in convalescence, which may be said to be quite as long as in Cæsarean section. Three weeks in bed, getting up gradually according to the amount of union in the symphysis. No hard work for six months to a year. (5) The great liability to sepsis which is shown in cases where there has been a bad laceration of the vagina.

Lastly, the rate of mortality. It has been placed at 10 per cent.; but this I feel is entirely too high. It ought not to exceed two or three per cent., with our recent methods and with greater care in selecting cases. We must admit that as yet operators are inexperienced, and the mortality is high on that account.

Indications. Symphysiotomy finds its proper field in contracted pelves, both flattened and generally contracted, and in certain impacted, faulty presentations of the vertex. The following limits should be carefully observed:—In flattened pelves, with conjugate vera of from 6·5 to 8·5 centimetres, and in generally contracted pelves from 7·5 to 9·5 centimetres. In pelves below these measurements Cæsarian section is indicated, forceps or version above. The operation should not be done until high forceps has been tried; nor is it indicated if the woman is in poor condition or the child dead.

Symphysiotomy comes, then, as a direct competitor of Cæsarean section, craniotomy and premature deliveries. The feeling is so strong in favour of saving the mother always, even at the expense of the child, that it will be a long time before either Cæsarean section or symphysiotomy will be generally practised; for even in the most skilful hands there is considerable danger in these operations, while in craniotomy or premature delivery the mortality ought to be nearly nothing. Again, the same difficulty arises with symphysiotomy as with Cæsarean section, namely, the length of time necessary for complete recovery, which is of considerable moment amongst the poorer classes. So many assistants are required and such careful nursing afterwards that it makes the operation impracticable except in clinics and rich families.

In closing, I may say that the opportunities of this operation are enormous, provided certain present objections can be removed. I do not agree with many who claim that the great mortality is sufficient to condemn the operation, for in skilful hands the death-rate ought not to exceed two or three per cent.—*Boston Medical and Surgical Journal*, February 21, 1895, p. 181.

69.—ON THE LOCAL TREATMENT OF PUERPERAL FEVER.

By CHARLES J. CULLINGWORTH, M.D., F.R.C.P., Obstetric Physician to St. Thomas's Hospital.

If we can never be certain in any given case of puerperal fever that there are not within the uterine cavity retained portions of placenta or membrane or decomposing blood-clot, either acting as the sole cause of the symptoms through the absorption of the chemical products of their decomposition, or aiding and abetting in the development of the more formidable type of septic infection by affording favourable media for the propagation and dissemination of the poisonous living germs that, in that case, constitute the *materies morbi*, the duty of the medical attendant to ensure the complete emptying of the uterus whenever septic symptoms appear is perfectly obvious. How should this be done? The ordinary teaching, and I think I may say the ordinary practice, is to rely upon the intra-uterine douche. The intra-uterine douche can only empty the uterus of its contents if those contents are lying free in the cavity, or are sufficiently loosely attached to be capable of being washed away by the current. I have met with but few cases in which these conditions have been fulfilled. The retained portions, when present at all, are seldom free in the uterine cavity, or even loosely attached to the uterine walls. The proper and effective course, after having ascertained that the bladder and rectum are empty, and after having thoroughly disinfected the hands, is to pass the first, and if possible the second, finger of one hand into the uterine cavity, while the other hand is used to steady and depress the body of the uterus by grasping it through the abdominal wall. Up even to the tenth day after labour at term the cervical canal remains sufficiently open to admit one or two fingers without artificial dilatation; and by utilising the external hand first to straighten the uterine axis by elevating the fundus, and then to press the whole organ downwards and backwards in the direction of the pelvic axis, the whole inner surface of the uterine cavity can, by a series of combined manipulations, be brought within reach of the examining fingers. The separation of an adherent portion of placenta is sometimes an easy process, but is more frequently a long and difficult one. Anyone, at any rate, who has once performed this operation will agree with me in the view I have expressed as to the powerlessness of the intra-uterine douche for such a purpose. He will also probably agree with me in preferring to use the fingers rather than the curette. Not having much experience of the curette in this class of cases, perhaps I ought not to say anything against it; but it would

require some very strong arguments to convince me that the use of a metallic instrument is as safe as that of the finger when portions of morbidly adherent tissue have to be separated by force from the softened and flaccid walls of a puerperal uterus.

When all adherent shreds have been removed, it is good practice to, once for all, douche the uterine cavity with a hot antiseptic solution, so as to wash away all the *débris* and completely empty the cavity. My own preference is for a solution of corrosive sublimate (1 in 5,000), at a temperature of 112° to 115° Fahr. Of this I generally use about half a gallon. The uterus should be carefully compressed after the douche has been employed, so as to prevent any of the solution from lodging in its cavity; and care should also be taken that none remains in the vagina. Unless these points are attended to, the internal use of corrosive sublimate is dangerous.

It has been recommended to follow up the use of the douche by inserting an iodoform intra-uterine suppository. I have done this in a few cases; and, though I cannot say that I have ever seen it do any harm, I have never been able to satisfy myself that it did any good. Another and more recent plan, of which I have no personal experience, but which has been very widely adopted in some other countries, is to pack the uterine cavity, after douching, with strips of iodoform gauze. This is said to arrest oozing, to act as a disinfectant, and to promote uterine contraction and involution. Personally, I am not as yet convinced that any sufficient advantage accrues from this packing to compensate for the additional disturbance of the patient that it involves both at the time and subsequently.

It is usual for the temperature and pulse to rise during the first few hours after intra-uterine manipulations of the kind I have described, but by next day, in the majority of cases, both temperature and pulse have fallen. I do not know the scientific explanation of the immediate rise (often accompanied with a rigor), but it may well be that, by separating adherent fragments from the inner wall of the uterus, a raw surface is suddenly exposed over a portion of the placental site, and that absorption is thereby, for the time being, greatly facilitated.

The subsequent progress of the case will depend upon whether it is one of septicæmia or sapræmia. In the latter case, the removal of the decomposing *débris* will have effected a cure. In the former case, it will not have done that, but it will have removed a probable source of septic absorption, and lessened the chances of further infection.

The question may here very reasonably be asked, "Have I carried out this method of treatment in my own practice, and, if so, with what result?" I may answer the first part of the question by saying that I have for some years been in the habit,

when called early into consultation in cases where a persistently high temperature and other symptoms of fever have followed childbirth, of making an intra-uterine examination; and that during the five years I held the appointment of Visiting Physician to the General Lying-in Hospital any rise of temperature, of more than ephemeral duration, occurring in one of my patients was taken as indicating the necessity for immediate intra-uterine exploration. The startling result of this somewhat large experience is that I can scarcely recall more than one or two cases where I have failed to find small pieces of adherent placental tissue in a condition of incipient or more advanced decomposition. In the great majority of cases the result of clearing out the uterus has been that the fever has disappeared within 24 hours; in some, the disappearance has been less rapid, and in others, where true septicæmia had already declared itself, the removal of the putrid *débris* has been ineffectual in checking the progress of the disease. But even in these last-named cases it was surely worth while to remove what could not be otherwise than a source of fresh absorption and therefore of continually increasing danger.—*The Practitioner*, April, 1895, p. 314.

70.—ON THE INFLUENCE OF DIET IN THE CAUSATION OF CANCER.

By W. ROGER WILLIAMS, F.R.C.S., Surgical Registrar,
Middlesex Hospital.

[We take the following from a most excellent monograph on diseases of the breast, just published (John Bale & Sons), and which we commend to our readers as a most complete and interesting work. The subject of the effect of diet in the causation of cancer is most important.]

In the present imperfect state of our knowledge it is very difficult adequately to estimate the influence of alimentation in the causation of cancer. This difficulty is singularly increased by the consideration, that the effects of diet in this direction probably only become appreciable after more than a single generation of individuals has been exposed to them. Hence the failure of the praiseworthy attempt of the British Medical Association's Collective Investigation Committee to solve this problem. From returns collected by this committee it appears that of 194 cancer patients, 123 had been moderate eaters, 59 small eaters, and 12 large eaters. With regard to meat, 99 had been moderate, 78 small, and 16 large eaters. There was not a single strict vegetarian among them; and only a few had been great eaters of vegetables.

That cancer is much less prevalent in vegetarian than in flesh-eating communities is generally believed ; and the following considerations are favourable to this view. In Ireland, where a large proportion of the population live chiefly on vegetable diet, the prevalence of cancer, as I have previously pointed out, is much less than in either of the sister countries ; and Beneke's statistics show that cancer is very rare in prisons, where but little animal food is allowed, and hard work is exacted. The remarkable fact that in New Zealand men are more liable to cancer than women is probably due, as MacDonald reports, to their gluttonous habits in respect to meat eating. "Meat for breakfast, lunch, dinner, tea, and supper, just like the porridge pot in Scotland." The greater prevalence of cancer in rural than in urban districts, and, in the latter, its greater prevalence in those localities where the well-to-do and easy-going reside, rather than among the poor and working classes, point to the same conclusion. It is certain, however, that vegetarians are not exempt from cancer ; for of 102 cancer patients operated on at the Jeypore Hospital during the period of 1880-88, 61 were strict vegetarians and 41 meat-eaters. Meat-eating communities are, as a rule, also alcohol consuming. There is, however, no evidence that the habitual consumption of alcoholic liquors *per se* in any way predisposes to cancer. The British Medical Association's inquiry indicates that the effect of this habit has rather the opposite tendency. The exemption of savages from cancer, and its great prevalence in civilised communities is probably largely attributable to the influence of diet. At any rate, it is certain that savages are, as a rule, less well fed than are the members of modern communities.—*Williams on "Diseases of the Breast,"* p. 289. John Bale and Sons, 1895.

71.—ON THE LIFE-HISTORY OF MAMMARY CANCER PATIENTS.

By W. ROGER WILLIAMS, F.R.C.S., late Surgeon to the
Western General Dispensary.

The *ensemble* of the facts relating to the life-history of mammary cancer patients shows that they have almost invariably led regular, sober, and industrious lives. Persons of drunken and dissolute habits are comparatively seldom affected. Of 165 female breast cancer patients consecutively under my observation, not a single one had ever been addicted to prostitution, so far as I could ascertain ; and, what is still more remarkable, there was not among them a single individual who

presented undoubted signs of having had syphilis. In this connection the almost complete immunity of mammary cancer patients from chronic ulcer of the leg is well worth noting. Of 165 patients consecutively under my observation, there was not a single instance of it. There is, however, no absolute incompatibility between the two diseases, for on analysing 597 consecutive cases of breast cancer, I have found that two patients had as well, chronic ulcer of the leg. The great rarity of the coincidence of these two diseases—each of itself so common in women over middle age—is certainly very remarkable.

Some authors, following the example of Astley Cooper, have attached great importance to grief, anxiety, and mental distress as causes of cancer; and they have adduced statistics in support of their belief. I am unable to confirm this. The majority of cancer patients whose life-history I have investigated, appeared to me to have been less exposed to depressing influences of this kind than most women of corresponding age in the general population.

I have often noticed on the face, chest, and upper limbs of breast cancer patients minute, pink telangelectases; but these are also commonly seen on the non-cancerous of corresponding age. The small outgrowths of warty or dermoid structure, said by De Morgan to coincide with or follow the development of cancer, I have very rarely seen in association with breast cancer; nor have I noticed that eczema, psoriasis, or other dermatoses often appear in the course of this disease, as Bazin and Hardy allege.

In conclusion, I must here express entire concurrence with Moore's statement; "that cancer is eminently a disease of persons whose previous life has been healthy, and whose nutritive vigour gives them otherwise a prospect of long life."—

Williams on "Diseases of the Breast," p. 291. John Bale and Sons, 1895.

72.—ON UTERINE CURETTING.

By D. BERRY HART, M.D., F.R.C.P.Ed., Edinburgh.

The operation of curetting the uterus in certain conditions to be specified shortly, has not taken the position in this country that it deserves. For this there are various reasons. The most prominent is the quite unwarrantable importance attached to backward displacements of the uterus. This displacement is too often considered quite sufficient to explain a patient's menorrhagia and leucorrhœa, the fact being that it has little

influence, if any, in their production. Profuse menorrhagia is, apart from fibroids, usually due to endometritis, and the only thorough remedy for this is curetting. There is no doubt, too, that it is easier to replace the uterus and insert an instrument, in the hope that all will go well, than to curette; but if the practitioner carefully notes the result he will in most cases find the displacement recur, and the symptoms remain unchecked. Another hindrance to curetting in suitable cases has been the *dictum* so strongly held by many, that chronic inflammatory thickenings, non-suppurative, in the connective tissue, tubes, or ovaries, contra-indicate treatment of an operative nature on the cervix or endometrium. If endometritis be present in cases requiring such interference, the inflammatory peri-uterine conditions must, according to the routine belief, be cured first by the hot douche and tampon before the idea of any operative treatment can be entertained. The reason for the preliminary care is the opinion that the old inflammatory mischief may be stirred up unless such palliative treatment is first employed. This precaution arose, however, in pre-antiseptic days, before the thorough antiseptic and aseptic treatment of wound surroundings was applied to gynæcology, and is, I believe, an unnecessary one. The dominance of uterine displacements in gynæcological pathology also misled one in another class of cases, viz., in those where a profuse menorrhagia or even metrorrhagia existed, with nothing apparently but a retroflexion of a somewhat enlarged uterus to account for it. No pessary cures this, but curetting does. The condition is one of fungous endometritis, and curetting gives marvellous results. I wish, therefore, to draw special attention to two classes of cases where curetting is highly useful, and gives either a complete cure or greater amelioration of the menorrhagia than any other treatment. These are :—

(1) *The chronic case in minor gynæcology where there is some enlargement of the uterus, often backward displacement, and usually peri-uterine thickenings, non-suppurative; with pain, menorrhagia, and leucorrhœa as its prominent symptoms.*—All gynæcologists will recognise this case as one of the most common in gynæcology, and for it I suggested the term of a “chronic infected case.” It is one to which the practitioner should specially direct his attention. The history usually is that the patient’s symptoms came on after an abortion or labour, and was practically a minor septic attack. The physical examination for its recognition is the bi-manual, or better, the recto-vaginal bi-manual. If this be carefully performed with the patient in the dorsal position, the knees well drawn up, and the abdominal parietes slack, the conditions I have mentioned can be easily made out. The lesions are multiple, and the first

point is to disentangle them and settle what "view" is to be taken of the case. The commonest view is that the backward displacement is the primary lesion to be treated, and that with replacement the untoward symptoms will vanish. I wish to urge, however, that the real nature of the case is a minor infection, septic in its nature, occurring after abortion or labour, and that the endometritis and peri-uterine thickenings resulted from that at the time, and have become ameliorated but persistent. The order of treatment should be, curetting for the endometritis first, and then the treatment of the thickenings, if they still remain, afterwards. Cervical splits I neglect unless hypertrophy is present, and then I amputate the cervix immediately after the curetting.

(2) *The case wherein profuse menorrhagia occurs, and the uterus, displaced or in normal position, has a thickened and vascular endometrium.*—In this case the uterus is always enlarged, and, indeed, may be so large as to make one suspect sarcoma or malignant disease. On examining the scrapings removed, thin-walled vessels are found in the connective tissue, but no epithelial penetration into it.

Method of operation.—The patient is chloroformed and placed in the lithotomy posture. The vulva is shaved and thoroughly washed with soap and water, and finally with boiled water and corrosive sublimate 1—2,000. The vagina and cervix are similarly treated.

The next steps are to dilate the cervix, to curette the uterus, wash it out with a double catheter, and finally apply pure carbolic acid. The instruments needed are Hegar's dilators, a sound, modified Sims's speculum with a broad blade, a volsella, and scoop-curette. All these instruments, except the dilators, should be boiled before the operation in a one per cent. carbonate of soda solution and placed, when cool, in carbolic lotion (1—30). It is sufficient to soak the dilators in carbolic lotion (1—20) for half an hour before use.

The operator's hands should be thoroughly cleansed with soap and hot water, then rinsed in boiled water, and finally thoroughly brushed with corrosive sublimate 1—2,000. These precautions are essential to success, and should on no account be omitted.

The speculum having been passed, the anterior lip of the cervix is laid hold of with a volsella, and the uterus drawn down. By means of the sound, the uterine position is now carefully ascertained, the length of the cavity measured, and then the dilators passed. One should begin with the size that passes readily, and then go on using the succeeding sizes until an amount of dilatation is attained equal to the calibre of the index finger, and thus one that allows the passage of such a curette as

Martin's. While the curette is being passed it should feel quite loose in the cervix, as this ensures delicacy of touch and enables one to feel resistance quite distinctly when the fundus is reached. Cases have been recorded where the uterus wall has been perforated, and serious mischief ensued. This, however, could only happen with extreme carelessness, or where the curette was passed through a rigid cervix and the necessary delicacy of touch lost.

The curette is then employed to scrape the uterine walls, anterior and posterior. A grating sound should be heard while this is being done. Sometimes it is advantageous to exercise counter pressure with the finger through the vagina on the anterior and posterior walls if the point of the curette does not seem to press sufficiently on the wall. One's object is to remove the mucous membrane down to the muscular coat. There is no fear of removing it all, as one cannot help missing certain parts at the fundus, and, in addition, the glands dip down between the muscular fibres in many places and serve for regeneration. Washing out with corrosive sublimate (1—4,000) by means of a double catheter, and application of pure carbolic acid on an armed sound completes the operation.

A much more difficult point to settle is the after treatment. It is best to curette immediately after the unwell time, or even on the last day of the period, so as to ensure easier dilatation (Braithwaite). This gives one also a longer time to apply astringents to the cavity, so as to restrain the vascularity of the regenerating mucous membrane. This should be done on the third and tenth day at any rate, and should consist in the application of pure carbolic acid on an armed sound, the parts having been carefully cleansed and douched first. Our knowledge is still defective as to what happens after curetting, but in a recent communication by Professor Worth, of Kiel, some interesting facts have been brought forward.

Professor Werth examined six uteri after extirpation, where on various days before the operation he had curetted the mucous membrane. He found the curette removed varying thicknesses at different places, and that at the fundus and sides of the uterus, parts were not removed at all. On the anterior wall the muscularis was occasionally found wounded. In the two uteri curetted five days before operation, he found the mucous membrane regenerated, the glands fully formed, and no defects in the superficial epithelium. Fibrous connective tissue was more abundant than the cellular elements, but the former underwent a hyaline degeneration, and large spindle cells appeared in its place about the tenth day. We do not know as yet how the application of caustics modifies this process.

The immediate results of this treatment are usually excellent, but it may require to be repeated. In none of the many cases I have practised it have I had any bad result, either minor or major ; and I can, therefore, recommend this procedure strongly in properly selected cases. If mischief should arise, it is not the stirring up of an old lesion, but the introduction of some septic infection at the time of operation.—*Medical Chronicle*, April, 1895, p. 11.

Addenda.

73.—ON THE DISRUPTION OF IMPACTED BILIARY CALCULI, INCLUDING THREE CASES IN WHICH A GALL STONE IN THE COMMON DUCT WAS BROKEN UP BY THE NEEDLE.

By T. PRIDGIN TEALE, F.R.C.S., F.R.S., Consulting Surgeon to the Leeds General Infirmary.

The surgical attack upon distended gall bladder and obstruction of bile ducts by gall stones is so recent that it is easy to trace many of the various steps which have led to the position in which the subject stands at the present day. I well remember one of the earliest operations, being present when the surgeon, I am not sure whether it was Mr. McGill or Mr. Robson, having opened a distended gall bladder and removed therefrom several calculi, discovered to his dismay that there were others lower down in the cystic duct which could not be seized by forceps. After a few minutes' consideration he began to manipulate the obstructing calculi by the fingers in the peritoneal cavity, and to the delight of all present succeeded in pressing them back into the gall bladder, where they could be seized by forceps and removed.

Some little time after, a similar case occurred to myself. A calculus was lying in the commencement of the cystic duct, so that about a fifth of its bare surface could be felt from the gall bladder, but the gall stone itself was too large to pass upward through the entrance to the gall bladder by any amount of pressure short of actual crushing. Whether I tried to crush

it or not I cannot remember, as the crushing of calculi in the ducts was then in its infancy, but this is what I did. Finding that I could, with the nail of the forefinger, break off bit by bit the surface of the calculus, I set to work and removed it piecemeal.

More recently, about two years ago, I dealt with a similar case in a more rapid manner. After removal of several calculi from the gall bladder, I felt the surface of another in the commencement of the cystic duct, which was far too large to be thrust backward into the gall bladder. Having at hand a No. 1 trocar I punctured the exposed surface from the open gall bladder whilst fixing the calculus with the thumb and forefinger in the abdominal cavity, and thus rapidly broke up and extracted the stone. There is no need to detain you with the more generally prevalent practice of crushing the impacted calculus by squeezing by the fingers or by forceps through the wall of the duct. A further method has been for some years been suggested, but to what extent it has been put in practice I am not able to say—that is, to break up the calculus by an acupuncture needle traversing the wall of the duct. The structure of most biliary calculi is such that if the calculus be pierced by a needle it breaks or splits up into fragments, which may often then be easily crushed into smaller fragments by the finger and thumb. This was the method adopted in the three cases which follow, two of which recovered, the third ending fatally.

Case 1.—February 10, 1893.—Mr. W., aged 62, a patient of Dr. Dickey, of Colne, “had suffered from jaundice for eight months, having had no previous attack. He had suffered frequent severe paroxysms of pain which latterly occurred every week, and were accompanied by shivering and rises of temperature to 103° and 104°. Shortly before the operation these attacks were so intense that it was thought he might die in one of them. He himself felt that he could not stand any more, and therefore he decided upon submitting to operation. He was weak and worn to a skeleton.” The operation proved to be difficult. The abdomen was small and shrunken, and the liver was large and thick-edged. The gall bladder was shrivelled and empty, deeply seated behind the thick edge of the liver, and could only be discovered after considerable search. It was clearly impossible to gain anything through the gall bladder. At last, after further careful search in the neighbourhood of the duodenum the tip of the finger discovered, in what seemed to be the position of the common duct, an oval body of the size of a haricot bean. It could not be grasped by the finger and thumb, nor by forceps. Pressure seemed for a time to make no change in the rounded body; but, after many attempts with the tip of the finger to crush it, it seemed to have a crack in the

middle. Then I attempted to break it up with the acupuncture needle, puncturing many times. At last it seemed to disappear and could not be recognised either by myself or by Mr. Hartley, who was assisting me. This being the first case I had treated in this way, as a precaution a drainage-tube reaching to the subhepatic space was inserted. His progress after the operation was satisfactory. The patient is now stout and well."

Case 2.—January, 1894.—Mrs. X., aged 35, a patient of Mr. Bowman and Mr. Green, of Ripon, had been deeply jaundiced for nearly three months, having never had any severe paroxysms of pain. As she was losing condition, and was beginning to suffer from irritation of the skin, it was decided to explore, especially as a lump could be felt in the region of the gall bladder. In this operation I was assisted by Mr. Jessop and Mr. Hartley. The gall bladder was moderately distended, and contained several very hard calculi. On examining further a calculus was detected, about half an inch in diameter, in the early part of the common bile duct. The calculus proved to be extremely hard, of such a degree as I have never observed in a biliary calculus. After ineffectual attempts to crush between the fingers, I made attempts to traverse the calculus with a strong acupuncture needle. These were at first unsuccessful because of the stony hardness of the calculus. At last it was transfixed, and then it broke up, so that we were all convinced that it was reduced to several fragments. The gall bladder was stitched to the surface, and a drainage-tube was passed down to the seat of acupuncture. After the operation there was a profuse flow of bile through the opened gall bladder. Severe abdominal pain set in early, and she died on the third day. As there was no post-mortem examination, I am not able to explain the rapidly fatal result, but I am inclined to attribute it in some way to the difficulty of the manipulations caused by the stony hardness of the calculus.

Case 3.—Mrs. D., aged 40, a patient of Mr. Hillaby, of Pontefract, had suffered from complete jaundice for months, when I visited her in February last. As she was not suffering very acutely, and was not much worn down, it was decided to wait a few weeks in the hope that, if the cause of the jaundice were a gall stone in the common duct, it might spontaneously escape.

In April there had been no amendment; she had become greatly emaciated, and was suffering intolerably from irritation of the skin, the skin of the legs being covered with small sores and scabs from scratching.

On April 25, 1894, the abdomen was opened, and from a moderately distended gall bladder several calculi were removed. On searching further we discovered in the common

duct a gall stone apparently about half an inch in diameter. This could be easily fixed between the thumb and finger, and after transfixion by the acupuncture needle was felt to break up, the fragments being further broken by crushing by the finger and thumb. After this it was very difficult to detect any lump or swelling in the site of the obstruction. The opening in the gall bladder was stitched to the wound, but no drainage-tube was inserted into the abdomen. Her progress, as far as the wound was concerned, was perfectly satisfactory. Bile began to flow from the gall bladder in small quantity, 2 or 3 ounces a day. She at once lost the irritation of the skin, had good nights, in which she had long been a stranger, enjoyed her food, and gained flesh. The subsequent course of this case is most peculiar and difficult to explain. Two points became clear. She at once lost almost completely the irritation of the skin, and the sores resulting from it rapidly healed. Indeed, the night after the operation was the first restful night she had had for some time. The second point was that she very soon began to thrive and gain flesh. Also within an hour or two after the operation she vomited fluid tinged green, from which we inferred—wrongly as it turned out—that the flow of bile into the bowel was re-established. Notwithstanding all this, the jaundice continued, the urine was generally deeply tinged with bile, and the evacuations continued to be of the tint of pale brown paper, not clearly containing bile. And yet—and this is the curious point— \bar{z} ij or \bar{z} iiij of bile daily escaped from the opening in the gall bladder. At the end of a month, by daily syringing of the gall bladder numerous fragments of calculus, evidently portions of the gall stone broken up by the needle, regurgitated from the common duct, were washed out, along with two or three small oval calculi which must have descended from the hepatic ducts. Four facts at this period seem to be clear:—(1) That the calculus in the common duct had undergone complete disruption by means of the needle and crushing; (2) that the fragments had failed to escape along the duct into the bowel, but had worked their way backward into the gall bladder; (3) that the passage from the bile tracts into the bowel was not free; (4) that, although there was an escape for bile through the open gall bladder, only a small proportion of the normal quantity of bile made its way through this biliary fistula. The puzzle of the case seemed to be this—Seeing that there is an obvious escape for bile through the established biliary fistula, and that apparently no bile passes into the bowel, why do we not have an escape of 20 or 30 ounces, instead of 2 or 3 through the biliary fistula? And seeing that there is a vent for the bile, why does not the jaundice disappear?

At the end of eight weeks I thought it right to reopen the abdomen, in order to make sure that there was no fragment of calculus still impacted in the common duct. A careful search failed to detect a trace of any gall stone or hardness or suspicion of a fragment, either in the cystic or common duct. And a further examination of the hepatic ducts failed to discover any source of obstruction in them. This second operation was attended with no drawbacks. The jaundice continued, the small flow of bile continued, she was restful, rarely had a trace of the irritation of skin, gained flesh, and, on leaving a month afterwards, was able to walk about.

On January 3, 1895, Mr. Hillaby reports "that she can go about and walk a mile. The jaundice, which had almost vanished, had again become marked. At times there is itching of skin, but never so distinct as before the operation. Flow from the fistula, variable. There is always some fine biliary *debris* washed out when the fistula is syringed." The case remains as much a puzzle as ever.

From the foregoing cases we may fairly infer that the use of the needle is a very valuable addition to our means of dealing with impacted biliary calculi, and may prove to be an important substitute for the crushing forceps. Where the gall stone will yield to the crushing effect of the thumb and forefinger, this is probably the best and safest method. But when the finger crushing fails, then I expect that the needle will prove to be more certain and less dangerous than either the use of crushing forceps or removal of the calculus by incision of the duct.—*British Medical Journal*, February 2, 1895, p. 237.

74.—THE PROPHYLAXIS OF INFLUENZA.

By J. G. SINCLAIR COGHILL, M.D., F.R.C.P. Edin., of the
Royal National Hospital for Consumption, Ventnor.

The annual recrudescence of influenza in epidemic form with more or less virulence renders its prophylaxis a matter of extreme urgency. My experience in this connection has confirmed the opinion that in quinine we have an almost unexceptionable preventive of the scourge. I was first led to the use of this remedy by recalling to memory a passage I had noted some years ago in a very amusing and interesting book by De Windt, entitled "From Peking to Paris." The author made the observation that the frequent change of encampment of the nomad Tartar tribes of the Central Asian steppes was not so much determined by the necessity for fresh pasture as by the circum-

stance that, if the encampment were not changed at intervals, influenza attacked them, and developed with increasing intensity until change of location was effected. This, of course, points to a *materies morbi* of telluric origin intensified by what French pathologists term *encomblement*, at first endemic and then epidemic in character. This agrees with the natural history of the epidemics of influenza of recent years. It was called by the Russians the "Chinese Influenza," from its Tartar cradle, and, when passed on its pestilential career to the west, became the "Russian Influenza" to the Germans and other nations of Northern Central Europe.

The following experience will, I think, show that my opinion of the protective properties of quinine in influenza is well founded. On the appearance of the epidemic in October, 1891, I was consulted by the principals of a large educational establishment, mostly patronised by foreign pupils, as to whether I would advise them to close the institution, or could recommend some efficacious preventive. The school consisted of 19 resident pupils, besides teachers, servants, and day pupils. I advised that every resident inmate of the house should take immediately after breakfast a gr.v. pill of sulphate of quinine. This injunction was strictly obeyed during the prevalence of the epidemic, with the result of complete exemption. One of the domestic servants who went to an adjacent town to attend her mother, who died of the epidemic, returned to her duties evidently suffering from it, but did not communicate it to any of the other inmates of the house.

A singular corroboration of this protective potency was afforded more recently in this same institution. All the inmates were put upon the matutinal quinine regimen as formerly, with the exception of one of the principals, who was induced to refrain, from other considerations in connection with her health. The result was that she alone took influenza in a rather severe form, but did not communicate it, not even to her colleague who shared her room throughout, but who was protected by quinine. My own personal experience is further corroborative. In the same epidemic of 1891-2, I similarly placed my whole household, consisting of 14 persons on quinine. In consequence of my mind being very much preoccupied with professional and other anxieties, I neglected after a few days to take my breakfast dose of quinine, the result of which was that I contracted the disease from some of my patients, and in a very severe form, with pneumonic consolidations of the right base. My temperature for nearly a week was recorded nightly at 103.8° . I was so gravely ill that my solicitor was sent for, and spent more than an hour at my bedside. He was unable to rise next morning, and the disease spread to his family and servants; they all had

severe pulmonary complications, and his wife succumbed. No other member of my family or household was attacked, because, as I am strongly convinced, they were protected by quinine.

I have since seen, in very many instances, further and equally convincing proofs of this prophylaxis. I am further impressed with the fact that the symptoms of influenza more rapidly yield to quinine with salicin if there be muscular or joint pains, or with ammonia in pulmonary complications, with a large administration of old dry champagne, for which indeed there seems to be almost as strong a craving as for air in the agonies of dyspnœa, than to so-called antipyretics, or other depressants, which not only retard the resolution of the morbid phenomena, but to which I largely attribute the subsequent debility and protracted convalescence which characterise so many cases of this ailment.—*The British Medical Journal*, April 6, 1895, p. 751.

75.—CASES ILLUSTRATING THE IMPORTANCE OF AN EXAMINATION FOR THE DIPHTHERIA BACILLUS.

By JOHN W. WASHBOURN, M.D., F.R.C.P., and
EDGAR O. HOPWOOD, M.D., of the London Fever Hospital.

At the London Fever Hospital, during the last two years, we have met with many instances of the value of a bacteriological examination for the diphtheria bacillus. In this short communication we propose to quote a few cases which appear to us to be of especial interest.

The method we have adopted has been the well-known one of cultivation upon the surface of coagulated blood serum, and, when necessary, the virulence of the cultivation has been tested by the inoculation of guinea-pigs.

Scarlet Fever Combined with Diphtheria.—Several observers have shown that the pultaceous or even membranous exudation upon the fauces, which often accompanies the acute stage of scarlet fever, is not caused by the diphtheria bacillus, and is therefore not true diphtheria. In a paper read by Dr. E. W. Goodall and one of the authors before the Clinical Society in 1893 this was insisted upon, and a number of cases were quoted in support of such a view. The authors did not deny that a true diphtheria might complicate the acute stage of scarlet fever; but they considered it to be uncommon. Our observations at the London Fever Hospital confirm these views, and the case we are now quoting is an exceptional one, in which the acute stage of scarlet fever was accompanied by an exudation upon the fauces produced by the diphtheria bacillus.

A boy, aged 9, was admitted into the London Fever Hospital suffering from scarlet fever. The history of the illness was that he was attacked with sore throat on the day before admission, and that the rash appeared within twenty-four hours of the onset. On admission there was a well-marked scarlatiniform rash, accompanied by the usual symptoms of scarlet fever. On the right tonsil there was a patch of whitish pultaceous exudation similar in appearance to the exudation commonly met with in the acute stage of scarlet fever.

The case was put in the scarlet fever ward; and, simply as a matter of routine, a bacteriological examination was made. On the next day many typical diphtheria colonies developed in the tubes. The exudation spread to the opposite tonsil, but soon cleared off from both sides. Well-marked desquamation ensued, and followed the usual course. Cultivations were made from the throat at short intervals during the patient's stay in the hospital, and on each occasion diphtheria bacilli were found. They are still present at the time of writing, six weeks after admission.

Post-Scarlatinal Diphtheria.—A pultaceous or membranous exudation, occurring on the fauces during the convalescent stage of scarlet fever, is frequently a true diphtheria caused by the diphtheria bacillus. In some fever hospitals this post-scarlatinal diphtheria is very prevalent, and there has been much discussion as to its causation. The case we have above quoted points to one of the ways in which this may arise. Had the case not been recognised, it is quite possible that it might have given rise to an epidemic of post-scarlatinal diphtheria in the ward. The following case is instructive from the same point of view.

A boy was admitted with an ordinary attack of scarlet fever, accompanied with rhinitis. The symptoms disappeared in due course; but during convalescence the rhinitis reappeared. This was considered to be a recrudescence of the rhinitis caused by the scarlet fever, especially as there were no other symptoms, and the throat was quite normal. A bacteriological examination of the discharge from the nose was made, and virulent diphtheria bacilli were found.

Duration of Infection in Diphtheria.—At the London Fever Hospital no patient is considered free from infection until a bacteriological examination has shown the absence of diphtheria bacilli from the throat.

The time varies very much in different cases: the longest period of which we have notes was sixty-three days after the disappearance of the membrane. In this case a number of examinations at different intervals were made, and bacilli were always found. Towards the end, the virulence of the bacilli, which were of the short variety, was tested and found absent.

Attempts were made to disinfect the throat with various antiseptic sprays, but with no effect. It should be mentioned that the boy was suffering from adenoid growths in the pharynx.

The Value of a Bacteriological Examination Made Some Time after a Slight Unrecognised Attack of Diphtheria.—The following case will serve as an illustration:—A boy suffered from a mild attack of what was considered to be coryza, accompanied by a slight nasal discharge. He quickly recovered, and nothing more was thought of it until some cases of diphtheria broke out among his companions. It was then thought possible that the coryza might have been a mild attack of nasal diphtheria, and one of the authors was consulted. A careful clinical examination of the patient, made three weeks after the attack of "coryza," failed to reveal anything abnormal; a bacteriological examination, however, revealed the presence of diphtheria bacilli, which were proved to be virulent by inoculation.

Diphtheria Bacilli in the Throats of Officials in Attendance on Cases of Diphtheria.—A nurse, who was in perfect health, was in attendance upon cases of diphtheria. A systematic bacteriological examination of her throat was made. Although the throat appeared absolutely normal, yet diphtheria bacilli were present on each of many occasions during a period of six weeks. The bacilli were of the long variety, and were proved to be virulent. The nurse did not suffer at all in health.

An examination of the throat of another official, who was often in contact with cases of diphtheria, was made on one occasion. Diphtheria bacilli of the short variety were present, but they were found not to be virulent.

The throats of four other nurses in attendance upon cases of diphtheria were examined, but with negative results as far as the presence of the diphtheria bacillus was concerned. One of these nurses suffered on two occasions from a mild angina while on duty in the diphtheria ward. On neither occasion were diphtheria bacilli present in her throat.—*The British Medical Journal*, January 19, 1895, p. 121.

76.—ON THE PROGNOSIS OF APOPLEXY DUE TO CEREBRAL HEMORRHAGE.

By ALFRED G. BARRS, M.D.Edin., F.R.C.P.Lond., Physician to the General Infirmary at Leeds.

In the observations I am about to make I am desirous calling attention to the prognostic indications afforded by those afforded by cases of apoplexy which are due to the

of cerebral hemorrhage which has for its primary seat the substance of the hemisphere, usually the neighbourhood of the external capsule of the corpus striatum ; but while making this limitation I may say that I believe that the conclusions which I shall venture to lay before you may readily be applied to all cases of apoplexy from whatever cause arising.

My observations concern only the prognosis as to life, and have no bearing on the probability of recovery of movements in paralysed parts.

Before proceeding further I wish it to be clearly understood that I use the term "apoplexy" in its original, clinical, and proper sense : that is, to describe a condition in which a person passes suddenly from a state of apparent health, it may be, to one in which all the functions of the cerebrum are suspended or in abeyance, the vital functions of the medulla alone, of those of the encephalon, remaining ; a state in which the patient is suddenly stricken down, so that he is deprived of all voluntary movement and all perception, so that he neither sees, nor feels, nor hears, nor moves.

Prognosis is admittedly one of the most difficult of the functions which the practitioner has to perform, and it is never more difficult or more responsible than it is in the case of cerebral apoplexy. There are very few of us who cannot call to mind cases of apoplexy where a fatal event seemed to be inevitable, and yet the patient has recovered possibly to pass through a second, and even a third, seizure of equal severity, and yet escape with life; while in others a seizure, so slight as to pass almost unrecognised, has gone on rapidly to a fatal issue. I may venture to quote a typical case of each class.

Some five years ago I was asked to see a lady, then in her 79th year, who had, in the midst of excellent health, and whilst still of great mental and bodily activity, been suddenly thrown into the apoplectic state. When I saw her, along with one of my colleagues, she was absolutely insensible, all the limbs relaxed, the face blue from venous obstruction, the breathing stertorous and audible at some distance from her room, and the chest rapidly filling with mucus. My colleague and I, and the members of her family, stood around the bed awaiting her death, which seemed to be a matter of minutes rather than of hours (her age alone seemed then sufficient to compel us to that opinion), yet she recovered, and, in spite of a left hemiplegia remaining, she lived an active life till her 83rd year, to die in the end of bronchitis, having in the interval had another apoplectic seizure. Her urine never contained albumen.

As a contrast to this case I may mention that of another lady, 75 years of age, who had been for some time under my observation. She had been known for two years previous to her death

to be the subject of chronic albuminuria. One morning on getting out of bed she fell, it was supposed from her weakness, to the floor, where she remained for a moment, and then got into bed again, apparently none the worse except for a little bruising of the right hip and elbow on to which she had fallen. There was not the slightest suggestion of loss of consciousness. She said she had caught her foot in the carpet, and so had fallen. A trifling difficulty in using the right limbs was attributed by her to the bruised elbow and hip, and nothing was thought of it until I saw her, when a little flattening of the face and a little blurring of her articulation (she was never aphasic) made it clear that she had had a hemiplegic seizure. From this she steadily became more and more helpless in the limbs, then dull and apathetic, and ultimately died comatose at the end of fourteen days.

To draw still further on my own experience :—In the medical out-patient department of a large general hospital there is usually to be found a not inconsiderable number of old hemiplegics who come up in the hope of getting some help for their useless limbs. During the eight years in which I was in charge of patients in the out-patient department I was very much struck by the fact that these cases of long standing hemiplegia the survivors, so to speak, of the initial attack were, almost without exception, free from albuminuria ; so that at the end of eight years of careful observation on this point, although I have no figures to put before you, I came to the conclusion that one did not see cases of hemiplegia associated with albuminuria (Bright's disease) in the out-patient room ; or, in other words, that cases of hemiplegia in which there was Bright's disease did not survive in any number ; that cerebral hemorrhage was a mode of death rather in, than an incident in the course of, Bright's disease.

Some recent figures published by Dr. Dana which have come into my hands during the last few days confirm this in a striking manner, for out of 100 non-fatal cases of hemiplegia only 1 case of Bright's disease was found.

Although albuminuria is incidentally mentioned by some writers as an indication of a dyscrasic condition which should be taken into account in forming a prognosis in cases of cerebral hemorrhage, I am not aware that it is formally and particularly set down as an important factor to be borne in mind in estimating the immediate danger to life in any given case. The reason for this is, I think, clear.

The association between albuminuria and sanguineous apoplexy has been so much and so frequently insisted upon, that some observers seem to regard Bright's disease as responsible for by far the largest number of cases of cerebral

hemorrhage. This view of the relation of chronic kidney disease to vascular disease, and so to cerebral hemorrhage, is to a great extent explained by the fact that the observations upon which it is based have been very largely, if not entirely, made in the post-mortem room, that is upon fatal cases.

I think that there can be little doubt, and it is a point upon which I may rely for support of my main contention, that a large majority of the cases of cerebral hemorrhage found in the post-mortem room present well-marked renal disease. To quote one observer only, Dr. Fagge says:—"In this country the most obvious pathological change found in the bodies of those who have died of effusion of blood into the brain is undoubtedly chronic renal disease. Among 116 cases which came under observation consecutively in the dead house of Guy's Hospital, some morbid condition of the kidneys is stated to have been present in 86, while in only 15 of the whole number is it reported that these organs were healthy." Dr. Fagge's figures are practically confirmed by the experience of this hospital. I have searched the post-mortem records for a period of 10 years, and find 32 cases of fatal cerebral hemorrhage (3 meningeal, 25 into the hemisphere, 1 into the pons, and 1 into the cerebellum). Of these, 20 had granular kidneys, and in 3 only are the kidneys described as healthy.

I think from these figures alone the great prevalence of granular kidney amongst fatal cases of cerebral hemorrhage is well established, and there is no need for me to dwell further upon what has been a well-recognised fact for many years. But it seems to me that here, as in many other matters in medicine, there has been too great a tendency to settle the whole question of cerebral hemorrhage by the findings of morbid anatomy, and to conclude that Bright's disease is the commonest associated condition of all cases of cerebral hemorrhage fatal and non-fatal alike, whereas, as I have already stated, as the result of my experience in the out-patient room, large numbers of cases of hemiplegia, the result of cerebral hemorrhage, have, so far as the condition of the urine can tell us, no renal disease. Upon this point I have by the kindness of my colleagues, Dr. Eddison and Dr. Churton, and with the able assistance of Mr. Stoney, obtained some interesting figures. Mr. Stoney has been good enough to inspect with great care the records of cases of hemiplegia diagnosed as due to cerebral hemorrhage, and under observation in the hospital during the years of 1880 to 1887 inclusive. Seventy-seven such cases were found. Of these, 3 were fatal, 50 had no albuminuria, 4 had albuminuria, in 18 no note of the urine was made, 2 are excluded as incomplete or doubtful cases. So that in 54 cases in which the observation was made, 50 had no albuminuria (1 of them a fatal case), and

4 only had albuminuria. I have also tabulated the cases of cerebral hemorrhage which appear in my own private case-books, with a view to ascertaining the frequency of renal disease amongst them. These cases are 35 in number (so that I am dealing with 112 cases in all); 18 of them died of their disease, and 17 survived. Of the 18 fatal cases, 9 had albuminuria, 4 had not albuminuria, in 4 no examination of the urine could be made, and in 1 there was albuminuria of cystitis. The 4 fatal cases without albuminuria all had some special condition which determined the result. One died a month after the seizure from incontinence and bedsores. One had lost both knee-jerks (always a dangerous sign, I believe). One had great cardiac irregularity, and died from cardiac failure. One died quite suddenly and unexpectedly from cardiac syncope when apparently making a good recovery from her seizure. One of the fatal cases with albuminuria had had two previous seizures, and had been known to have renal disease since the second seizure. Of the 17 who survived, not one had albuminuria.

One word as to the value of albuminuria as a sign of renal disease in cases of apoplexy. I quite recognise the fact that there are certain sources of fallacy in arguing the presence of renal disease from, it may be, a single examination of the urine; but in middle-aged men, who afford the greatest number of examples of cerebral hemorrhage, an albuminous urine of low specific gravity may be taken as a very strong indication of the presence of destructive renal disease. But there is another point which deserves mention in this regard, and that is the possibility of a transient albuminuria being actually induced by the apoplectic state; in what manner I will not pause to inquire, but a statement made by Dr. Gowers seems to suggest that such may be the case. He says, in speaking of the prognosis of cerebral hemorrhage, that the early appearance of albuminuria is a serious sign clearly meaning that albuminurica may appear during the apoplectic state. I have myself seen one case of apoplexy, not due to cerebral hemorrhage, in which both albumen and sugar were present for a time in the urine and then disappeared. This patient was never hemiplegic, and he made a complete recovery, except that his knee-jerks were absent and had not returned when he left the hospital. It was a remarkable case, possibly an example of the apoplexy of tabes. According to Dr. Gowers, then, an albuminuria which appears during the apoplexy, and which therefore cannot be due to renal disease, is of serious import. Beyond the case I have mentioned, I have no personal experience in this matter; but I think there need be no difficulty in admitting that the profound vasomotor disturbances seen in fatal apoplexy may well give rise to an albuminuria not due to actual renal disease. If

Dr. Gower's view be correct, it does not materially affect the point I am anxious to make, and that is, that the presence of albuminuria is almost invariably of fatal import.

For the last few years I have made it a rule to defer any expression of opinion as to the probable outcome of any given case of apoplexy due to cerebral hemorrhage until an examination of the urine has been made, and when that examination has shown, in my judgment, the presence of renal disease, I have always, or almost always, seen the patient succumb to his seizure. I have, in a few instances, the details of which I need not trouble you with, departed from the teachings of my experience, and have given a favourable opinion in the presence of renal disease, or have given an unfavourable opinion where there was no evidence of renal disease and other unfavourable signs were absent, and have almost always been wrong in the end. In speaking thus positively may I repeat that I have in view a quite definite class of cases, namely, those in which the patient is unconscious and the diagnosis of cerebral hemorrhage has been made on good grounds? I do not propose to apply the test to any other cases, although, as I said at the beginning, I have a strong reservation that it will be found to be a good rule for all cases of apoplexy from whatever cause arising.

It will follow from this that in the presence of renal disease the first attack of apoplexy should be fatal, or, in other words, that those who have repeated attacks of apoplexy are not also the subjects of renal disease. A curious confirmation of this point is afforded by Dr. Dana's statistics, already referred to, for he found that in 79 fatal cases only 4 had had previous attacks. It will be remembered that in my 35 private cases there was only 1 of the 18 fatal cases with albuminuria who had had a previous attack.

I may be permitted for a moment to consider why it is that renal disease exercises this fatal influence upon the course of apoplexy due to cerebral hemorrhage. The immediate cause of all cerebral hemorrhage, it will be at once admitted, is disease of the cerebral blood vessels. It will be as readily admitted that without vascular disease renal disease can never cause cerebral hemorrhage. I am one of those who believe that a large number, possibly the majority, of cases of the vascular disease which gives rise to the cerebral hemorrhage is quite independent of renal disease. The immediate cause of all cerebral hemorrhage is the same in the fatal and the non-fatal cases alike; the fatality in the instance under discussion, if my view is correct, is independent on the renal lesion. Why is this so? It seems to me to be so constantly so that I should hesitate, and my experience has justified me in hesitating, to give anything but an unfavourable prognosis in even the most trifling seizure associated with

renal disease. I think the explanation is not far to seek, and that that which so commonly happens as I have tried to show, namely death, is what we should expect in such a serious and sudden lesion occurring in a person whose organs are in the damaged and spoilt condition which results from long continued renal disease. What is true of other organs is true of the brain and its blood vessels. The patient's safety in apoplexy depends upon an early arrest of the bleeding and rapid repair of the injured parts. Both of these processes seem to be well nigh impossible in the presence of renal disease, and I have no doubt that precisely the same causes which make ordinary surgical injuries and operations so notoriously dangerous and fatal in chronic renal disease are acting in the case of cerebral hemorrhage.

Hitherto I have been attempting to deal with the prognostic indications afforded by the ascertained presence of renal disease, and in doing so have doubtless done nothing more than repeat facts and conclusions already well established in the minds of many observers, although not to my knowledge formally and publicly stated.

I wish in a very few words more to call attention to some signs of fatal import in cases of sanguineous apoplexy in which renal disease is not present, for apoplexy occurring in those free from renal disease is not infrequently fatal. First of all, I may be allowed to state that which is obviously true, and that is that there is no immediate question as to life in any case of cerebral hemorrhage in which the patient is conscious. All observers are agreed that whenever the effusion of blood has been so large as to invade the ventricles a fatal issue is inevitable, but what the certain signs of blood in the ventricles during life are it is very difficult, if not impossible, to state. I am, however, strongly of opinion that the mere intensity and duration of coma is not a safe guide as to this point. The locality of the hemorrhage, supposing we are able to determine it, will in certain cases decide the question of life or death. Bleeding into the pons, medulla, or fourth ventricle must, renal disease or no renal disease, soon prove fatal.

Many attach great importance to the condition of the pupils in apoplexy, as in many other diseases of the brain, but I think most will agree that they are an uncertain guide. Permanently contracted pupils, with deep coma, have been for long regarded as a most unfavourable sign in apoplexy, and on the whole I believe them to be such. Most of us no doubt have our own favourite omens in apoplexy as in other diseases. I am, however, desirous of calling attention to two conditions well known and referred to in all standard works as signs of great significance—namely, certain disturbances of breathing, especially the

peculiar form of breathing known as Cheyne-Stokes' respiration, and a rapid rise of temperature. Disturbances of respiration in cases of apoplexy are, I have no doubt, of grave omen. So long as the respiration remains regular, however noisy and stertorous it may be, other things not being unfavourable, I believe the patient may recover, but when irregular breathing sets in, and above all when undoubted Cheyne-Stokes' respiration is present, the patient is, I believe, in the greatest danger. I am speaking of course of Cheyne-Stokes' respiration along with insensibility; without insensibility it has no serious meaning at the moment.

A certain, always moderate, amount of pyrexia occurs in many cases of cerebral hemorrhage after the initial depression due to shock has passed away, but a temperature rapidly rising to 104° , 106° , or even 108° is of absolutely fatal significance. Hyperpyrexia is not, I believe, of any great value in showing the locality or extent of the lesion; it indicates probably an extension to, or involvement of, the basal ganglia and pons, and so probably means an invasion of the ventricles.

There are then, as I have tried to show, in my opinion at least, three important prognostic indications to be looked for in any given case of apoplexy due to hemorrhage into the substance of the hemisphere, namely, (1) renal disease; (2) Cheyne-Stokes' respiration; (3) hyperpyrexia. By far the most important of these is renal disease.

If, in conclusion, I may state my opinion in the form of a rule for prognosis, I would say this. In any case of apoplexy due to hemorrhage into the hemisphere, if renal disease, Cheyne-Stokes' respiration, or hyperpyrexia, any one, two, or all three be present, the patient will in all probability not recover. If no one of these is present, and does not make its appearance, he may, and probably will, recover, however long insensibility may last and however deep it may be.

The presence of other serious conditions, such as diabetes, chronic alcoholism, typhoid fever, idiopathic anæmia, will, I have no doubt—for I have seen examples of this effect—exert just as fatal an influence as renal disease upon the course of sanguineous apoplexy.—*The British Medical Journal*, May 18, 1895.

ACTIVE, CLEANLY, and EFFICIENT

PREPARATIONS OF THE THYROID GLAND.

THYROIDIN.

The success attending the use of Thyroid Extract in Myxoedema, shown strikingly in the changes that occur in the skin, has suggested its use in cases usually known as *chronic psoriasis*, and wonderfully successful results appear to have been obtained.

In addition to a most interesting article on the subject of Graves' disease and its probable connection with thyroid function, which appeared in *The Lancet*, Jan. 6th, 1894, p. 36, there appears on p. 19 of the same issue "Notes on Five Cases of Skin Disease treated by Thyroid Gland," by J. F. Gordon Dill, Esq., M.A., M.D., Assistant Physician to the Sussex County Hospital, Brighton. Three of these cases of Chronic Psoriasis, after treatment with iodide of potassium and arsenic internally, and chrysophanic acid ointment locally, showed no improvement, but, on the other hand, the disorder was in some cases aggravated, developing a general dermatitis of the face with febrile disturbance.

But on the treatment being changed and **TABELLÆ OF THYROID GLAND** (ALLEN & HANBURY'S) being administered, in the words of the author: Case 1.—"The improvement was very striking....the scales were completely gone, and all that was left was a slight discolouration of the skin where the disease had appeared."

Case 2.—"The scalp and limbs were nearly clear....The patient, who has suffered from the disease for nineteen years past, has had no discomfort from the remedy, and says that nothing has ever acted so rapidly upon his disease."

Case 3.—"The result was astonishing, for in three days there was a marked improvement, and no further spread of the disease had taken place. No discomfort was experienced from the remedy."

For full details of the above quotations see *The Lancet*, January 6th, 1894, p. 19.

ALLEN & HANBURY'S preparations of Thyroidin were introduced to the medical profession in the advertising columns of *The Lancet* on February 25th, 1893. Careful study

and subsequent experience in the mode of preparation, under the guidance and direction of some of the leading members of the medical profession, have enabled them to produce Thyroidin—i.e., the active principles isolated from carefully selected glands, *minus blood, fat, and inert tissue, which readily decompose*, producing gastric disturbances, vomiting, &c., and which give to some preparations on the market a most repulsive smell, especially when they have been kept for a short time.

THYROIDIN TABELLÆ

Readily disintegrate when swallowed and from their shape and size are taken without difficulty. If preferred, they may be dissolved in a little water before being swallowed. One Tabella equals 5 grs. of gland. Dose, 1 or 2.

To illustrate well the vast improvement, both physical and mental, which this form of treatment induces in sporadic cretinism, see original article in *The Lancet*, with Photographs by William Wallis Ord, M.D., Oxon, M.R.C.P. Lond., Nov. 4th, 1893, p. 1113.

All these cases were treated by Allen & Hanburys' Thyroidin Tabellæ. The results are perhaps more remarkable than those obtained in the allied condition of myxoedema. The writer observes that these preparations have given entire satisfaction. The Photographs speak for themselves.

The Medical Press and Circular writes, October 25th, 1893:—"These are manufactured with the care and attractive form for which this firm is celebrated, and the results have answered our most sanguine anticipation."

"Elegant pharmaceutical preparations. . . . Thyroidin contains the active elements of the gland in a very concentrated form, and it is therefore very convenient for administration."—*Medical Magazine*.

"We can highly recommend them to our readers."—*Edinburgh Medical Journal*.

"Active and therapeutically valuable."—*Practitioner*.

"Typical specimens of elegant pharmacy in its latest developments."—*The Chemist and Druggist*.

"Thyroidin Elixir has an agreeable flavour, and appears to keep very well."—*British Medical Journal*.

Thyroidin is put up either in the form of powder, compressed tabellæ, and elixir, at 1/-, 2/6, and 4/6 (retail), or 8/-, 21/-, and 40/- per dozen to the Profession. Samples supplied to the Profession on application.

Allen & Hanburys, Ltd., London.

Offices, Laboratories & Warehouse—BETHNAL GREEN, E. City House—PLOUGH COURT, LOMBARD ST., E.C.
West End House—VERE ST., W. Cod Liver Oil Factories—LONGVA AND KJERSTAD, NORWAY.
Depôt for AUSTRALIA—484 COLLINS ST., MELBOURNE.

See also pages i, ii, iii, and 415.

INDEX TO VOL. CXI.

	PAGE
Abdominal aorta, embolism of	68
<i>Abernethy</i> , Dr., on malakin as an antipyretic and anti-rheumatic	28
<i>Abrahams</i> , Dr. P. S., on the treatment of skin diseases by thyroid extract	119
Acromegaly, improvement under treatment by thyroid gland, Dr. Caton on	1
————— two cases of, with remarks, Mr. George R. Murray on	178
Acute tonsillitis	103
Aegophony, Dr. Frederick Taylor on the causation of	79
Albuminuria and puerperal convulsions	108
————— Bright's disease without	104*
Albuminurica, retinitis, on the duration of life after the appearance of	109
Alcohol in diabetes, Hirschfeld on	6
<i>Allbutt</i> , Prof. Clifford, on senile plethora, or high arterial pressure in elderly persons	76
Amputation at the shoulder, the control of hemorrhage by the operator in, Mr. Clement Lucas on	110*
Anæmia, idiopathic pernicious, Dr. Alfred G. Barrs on a case in which arsenical palsy had been induced treated by bone marrow	165
Aneurisms of arteries of the extremities by extirpation of the sac, Mr. H. Littlewood on the treatment of	293
————— previously unrecognised, sudden death by the rupture of thoracic, Dr. F. W. Draper on	243
Ankle sprained, Dr. Gibney on treatment of	113
Anorexia nervosa, Dr. C. F. Marshall on a fatal case of	55
————— Mr. Lockhart Stephens on a fatal case of	53
Anthrax, A. F. Matveiff on the treatment of	110*
Antidote in chloral poisoning, Dr. John Dougall	10
Antipyrin in the treatment of pruritus, F. Arnstein on	64
Antitoxic treatment of infective diseases, Mr. Bertram Hunt on	189
Antitoxin and intubation in diphtheria, Dr. Hunter Mackenzie on	18
————— diphtheria, clinical observations on a series of 80 cases treated with, Messrs. Washbourn, Goodall, and Card on	140
————— recovery of a case of tetanus treated by	114*
————— tetanus, Dr. Richard T. Hewlett on	114*
————— treatment of diphtheria, Dr. Latham on	15
————— Dr. G. Sims Woodhead on	144
————— Dr. G. S. Woodhead on	11
————— Kossel and Kœrte on	13
—————	16
Aorta, abdominal, embolism of	68
Appendicitis, Dr. J. W. White on	92
—————	334
Apoplexy due to cerebral hemorrhage, Dr. Alfred G. Barrs on the prognosis of	393
Aristol in otorrhœa and burns, Dr. Krebs on	111
Arsenic, elimination of, Dr. Dixon Mann on	7
————— in leukæmia, Dr. S. Rummo on hypodermic administration of	28
Arterial pressure, high, treatment of	78
————— in elderly persons, Prof. Clifford Allbutt on senile plethora or	76
Arthropathies of locomotor ataxy, Dr. Parker Syms on	204
Asafoetida in obstetrical and gynæcological practice	124
<i>Ashby</i> , Dr., on scurvy rickets	38
<i>Ashton</i> , Dr., treatment of pleuritic effusions	86
Asthenia, cardiac, in children suffering from infectious diseases, Dr. Sevestre on	238
Asthma, spasmodic, caffeine in, Dr. Markham Skerritt on	80
Ataxia as a symptom of disease in the cerebro-spinal system, Dr. D. B. McCartie on	200
Atrophic rhinitis, the treatment of by zinc stearate, Dr. Joseph S. Gibb on	265
Aural massage, Mr. L. Turnbull on its value in the treatment of various diseases of the ear	120
<i>Austen</i> , Dr. Harold and Mr. Harry Coghill, on hemorrhagic diphtheria	187
<i>Aveleon</i> , Surg.-Major S. T., on the treatment of dysentery by cinnamon	97
Bacteria and their toxins, Dr. E. Klein on the relation of	132
<i>Baldwin</i> , Dr. W. W., on some cases of Graves' disease, succeeded by thyroid atrophy	180

	PAGE
<i>Banks</i> , Dr. W. Mitchell, on two cases of enterectomy in which Murphy's button was used	342
——— Mr., on leprosy of the ulnar nerve	61
<i>Barkas</i> , Mr. W. J., on bilateral facial palsy as a sequence of influenza ..	55
<i>Barling</i> , Mr. Gilbert, on the mortality of the various operations for the removal of vesical calculus, especially in children	359
<i>Barlow</i> , Dr. Thomas, on hæmaturia in infantile scurvy	24
——— on the clinical manifestations of infantile scurvy and its relation to rickets	157
——— on the pathology of infantile scurvy in its relation to rickets	152
——— on the social relations, &c., of infantile scurvy	25
Barlow's disease (scurvy rickets), Baginsky on	7
<i>Barrs</i> , Dr. Alfred G., on a case of idiopathic anæmia, in which arsenical palsy had been induced, treated by bone marrow	165
——— on the prognosis of apoplexy due to cerebral hemorrhage	
Basedow's disease, thyroid feeding in	42
Baths and exercise, the treatment of chronic affections of the heart by, Dr. W. Bezley Thorne on	
<i>Beadles</i> , Mr. Cecil, on tumours involving the base of the skull	68
Bilateral facial palsy as a sequence of influenza, Mr. W. J. Barkas on ..	55
Biliary calculi, the disruption of impacted, including three cases in which a gall stone in the common duct was broken up by the needle, Mr. T. Pridgin Teale on	385
<i>Bleeh</i> , Dr. Gustavus, on rational treatment of cholera infantum	95
Bone marrow, Dr. Alfred G. Barrs on a case of idiopathic anæmia, in which arsenical palsy had been induced, treated by	165
<i>Booth</i> , Dr. J. Arthur, on thyroidectomy in Graves' disease	42
<i>Braithwaite</i> , Dr., on dilatation of the unimpregnated uterus	124
Bright's disease without albuminuria	105
<i>Bruce</i> , Dr. J. Mitchell, on the gouty heart and its treatment	230
Burns and otorrhœa, aristol in, Dr. Krebs on	111
Burns, Dr. Grose on the treatment of	111*
<i>Buzzard</i> , Dr., on transitory palsies in insular sclerosis	60
<i>Caddy</i> , Mr. Arnold, on prolapse of the rectum treated by ventro-fixation ..	350
Caffeine in spasmodic asthma, &c., Dr. Markham Skerritt on	80
Calculus, vesical, Mr. Gilbert Barling on the mortality of the various operations for the removal of	359
Calomel as a diuretic, Dr. W. Pepper on	8
——— fumigation in laryngeal diphtheria, Dr. W. P. Northrup on	150
<i>Campbell</i> , Mr. Colin, on treatment of respiratory affections by means of large medicinal injections through the larynx	90
Cancer, Mr. W. Roger Williams on the influence of diet in the causation of ..	379
——— of the pylorus, Dr. F. Kammerer on the surgical treatment of	327
——— of the stomach, Dr. Richard B. Faulkner on the absence of free hydrochloric acid in	279
——— patients, the life-history of mammary, Mr. W. Roger Williams on ..	380
——— the conditions of cure in, Dr. Herbert Snow on	302
<i>Carasso</i> , Dr., on new method of treatment of pulmonary phthisis	89
Carcinoma of the intestine, Dr. James Ritchie on	93
Cardiac affections and their indications, Dr. T. R. Fraser on the remedies employed in	220
——— asthenia in children suffering from infectious diseases, Dr. Sevestre on	238
——— dilatation, Sir Dyce Duckworth on some points in the treatment of the gravest forms of	235
——— therapeutics, Prof. Fraser on	69
Castration, effects of upon the enlarged prostate, Mr. E. Hurry Fenwick on ..	105
——— for the cure of hypertrophied prostate, Dr. J. William White on ..	357
——— prostatic hypertrophy treated by	108
Catheter fever, Dr. Southam on	105*
<i>Caton</i> , Dr., on improvement in acromegaly under treatment by thyroid gland ..	1
<i>Cautley</i> , Dr., on treatment of empyema in children	81
Cerebral hemorrhage treated by ligature of the common carotid artery, Dr. F. X. Dercum on	59
——— Dr. Alfred G. Barrs on the prognosis of apoplexy due to	393
——— tumours, differential diagnosis of, Mr. Victor Horsley on	211
Cerebro-spinal meningitis, acute idiopathic, Dr. J. A. Ormerod on ten fatal cases of	49

	PAGE
Cerebro-spinal system, Dr. D. B. McCartie on ataxia as a symptom of disease in the	200
Chambers, Dr. Graham, on potassium permanganate, a new antidote to morphia	33
Chancres in the sight of old sores, Mr. Jonathan Hutchinson on the recurrence of	105*
Chaplin, Dr., on foetid expectoration treated by inhalations of coal-tar creasote vapour	83
Chills as a cause of error in diagnosis, Dr. Osler	9
Chloral poisoning, Dr. John Dougall on chemical antidote for	10
Chloralose in the treatment of night sweats, M. Sacaze on	86
Chloroform in tetanus	116
Cholera infantum, Dr. Gustavus Blech on rational treatment of	95
Cinnamon in the treatment of dysentery, Surg.-Major S. T. Avetoon on	97
Climacteric period, the sensory throat neuroses of the, Dr. Felix Semon on	207
Climatic treatment of phthisis, Dr. C. Theodore Williams on the	251
Coal-tar creasote vapour, foetid expectoration treated by inhalations of, Dr. Chaplin on	83
Coghill, Dr. J. G. Sinclair, on the prophylaxis of influenza	389
----- in dermatological practice	116*
Colitis, Dr. Hale White on	271
Constipation, habitual, Dr. Henry Illoway on	95
Convulsions, lead, Dr. D. D. Stewart on	214
----- puerperal, and albuminuria	108*
Cornea, simple method of removal of foreign bodies in the ear, Dr. N. D. Harvey on	120*
Coryza, acute, M. Marcel Lermoyez on the treatment of	1
----- caseosa, Dr. McBride on	120*
Crossed knee-jerk, Drs. Hinsdale and Madison Taylor on	58
Cruickshank, Dr., on relationship of influenza and epidemic pneumonia	26
Cullingworth, Dr. Chas. J., on the local treatment of puerperal fever	377
----- Dr., on removal of the uterine appendages for uterine myoma	127
Curetting, uterine, Dr. D. Berry Hart on	381
Cystic kidneys, Dr. Pye Smith on	106
Denny, Dr. C. F., on local treatment by silver nitrate of persistent hæmaturia	107*
Depression of spirits bordering on insanity, Dr. F. Orton on	63
Dercum, Dr. F. X., on ingravescens cerebral hemorrhage treated by ligature of the common carotid artery	59
Dermatological practice, coal tar in	116*
Diabetes, alcohol in, Hirschfeld on	6
Diarrhoea, summer, and the sterilisation of milk, A. Baginsky on	103
Diet in the causation of cancer, Mr. W. Roger Williams on the influence of	379
----- in typhoid fever, Dr. Charles W. Dulles on	162
Dilatation of the cervix of the unimpregnated uterus, Dr. Braithwaite on	124
Diphtheria, Dr. Latham on antitoxin treatment of	15
----- Dr. G. S. Woodhead on antitoxin treatment of	11
----- Kossel and Koerte on antitoxin treatment of	13
----- MM. Martin and Chaillon on antitoxin treatment of	16
----- antitoxin, clinical observations upon a series of 80 cases treated with, Messrs. Washbourn, Goodall, and Card on	140
----- feeding by the stomach-tube in, Dr. Alexander Morrison on	22
----- hemorrhagic, Dr. Harold Austen and Mr. Harry Coghill on	187
----- intubation and antitoxin in, Dr. Hunter Mackenzie on	18
----- laryngeal, Dr. W. P. Northrup on calomel fumigation in	150
----- menthol in, F. Kastorsky on	30
----- suppression of urine in, Dr. E. W. Goodall on	286
----- the antitoxin treatment of, Dr. G. Sims Woodhead on	144
----- treatment of by Leoffler's mixture	19
----- bacillus, Dr. J. W. Washbourn and O. Hopwood on cases illustrating the importance of an examination for the	391
Diphtheritic discharges, Prof. Hamilton on a method of collection of	19
Disinfection of tubercle infected houses	46
Donkin, Dr., on malignant jaundice in a child two years of age	99
Dougall, Dr. John, on chemical antidote in chloral poisoning	19
Downie, Mr. Walker, on the care of the ear during the course of the exanthemata	365
Draper, Dr. F. W., on sudden death by the rupture of thoracic aneurisms previously unrecognised	243
Duckworth, Sir Dyce, on some points in the treatment of the gravest forms of cardiac dilatation	253

	PAGE
<i>Dulles</i> , Dr. Charles W., on diet in typhoid fever	162
Dysentery, acute, Sir Joseph Fayver on the treatment of	3
——— treated by cinnamon, Surg.-Major S. T. Avetoon on	97
Dysmenorrhœa, Dr. Schwarz on the treatment of	124*
Ear, the care of during the course of the exanthemata, Mr. Walker Downie on	365
Eczema, Mr. Tomroy on ichthyol in	117
Embolism of abdominal aorta	68
<i>Emminghaus</i> , Dr., on turpentine in incontinence of urine	110
Empyema of the antrum, Dr. Scanes Spicer on treatment of the chronic form of	121
——— in children, treatment of, Dr. Cautley on	81
Enlarged prostate, effects of double castration (White's operation), upon the, Mr. E. Hurry Fenwick on	105
Enteralgia, Professor Potain on	269
Enterectomy, two cases in which Murphy's button was used, Dr. W. Mitchell Banks on	342
Epistaxis, on recurrent	121*
Etherisation, rectal, Mr. Bernard Stedman on	112
Etiology of tuberculosis, Dr. Herbert M. King on the	136
Exanthemata, the care of the ear during the course of, Mr. Walker Downie on	365
Excision of the rectum, Mr. F. T. Paul on	351
Exophthalmic goitre and hysteria, thyroidism and and its relation to	43
——— Mr. David Owen on its treatment by thymus gland	20
Expectoration, foetid, treated by inhalations of coal tar creasote vapour, Dr. Chaplin on	83
<i>Faulkner</i> , Dr. R. B., on the absence of free hydrochloric acid in cancer of the stomach	279
Femur, impacted fracture of the neck of, Mr. F. A. Southam on the treatment of	311
——— immediately above the condyles, fracture of the, Mr. Howard Marsh on	313
<i>Fenwick</i> , Dr. Soltau, on tetany and chronic dilatation of the stomach	63
<i>Fenwick</i> , Mr. Hurry, on effects of double castration (White's operation) upon the enlarged prostate	105
Fever, catheter, Mr. Southam on	105*
——— puerperal, Dr. Chas. J. Cullingworth on the local treatment of	377
——— rheumatic, Dr. Arthur Newsholme on the natural history of	192
——— scarlet, Dr. E. W. Goodall on perforation of soft palate in	37
Fevers, heart failure in, M. Huchard on the signs of	71
<i>Field</i> , Mr., the prognosis of chronic non-suppurative otitis media, with imperforate membrane	123
<i>Fisher</i> , Dr. T., on presystolic apex murmur occurring with aortic disease and with adherent pericardium, with absence of mitral stenosis	73
Foreign bodies in the air and food passages, and the principles of the removal, Dr. Felix Semon on	254
<i>Fournier</i> , Prof., on early signs of locomotor ataxia	61
Fracture of the neck of the femur, Mr. F. A. Southam on the treatment of	311
<i>Fraser</i> , Dr. T. R., on the remedies employed in cardiac affections and their indications	220
——— Prof., on cardiac therapeutics	69
<i>Frees</i> , Dr. G., on operative treatment of tuberculous peritonitis with ascites	104*
Furunculosis of the external auditory canal, Dr. S. M. Smith on	121*
Furunculosis, Van Hoorn on treatment of	117*
<i>Garrigues</i> , Dr., on pubic symphiosotomy	126*
Gastrostomy, the various methods of performing, Dr. Willey Meyer on	330
Genito-urinary organs, Dr. Francis S. Watson on primary tuberculosis of the	362
<i>Gibb</i> , Dr. Joseph S., on the treatment of atrophic rhinitis by zinc stearate	265
<i>Gibney</i> , Dr., on treatment of sprained ankle	113
<i>Gillette</i> , Dr. Arthur J., on non-tuberculous diseases of joints	30
Gleet, Mr. Southam, on the treatment of	106*
Goitre, exophthalmic, Mr. David Owen on its treatment by thymus gland	20
Gonorrhœal peritonitis in the male, Dr. A. J. McCosh on	107
<i>Goodall</i> , Dr. E. W., on suppression of urine in diphtheria	286
——— on perforation of soft palate in scarlet fever	37
———, Washbourn, and Card, Messrs., on clinical observations upon a series of 80 cases treated with diphtheria antitoxin	140
<i>Goodwin</i> , Dr., on pregnancy following ventral fixation of the uterus	126

	PAGE
Gouty heart and its treatment, Dr. J. Mitchell Bruce on	230
Gowan, Mr. B. Campbell, on myxœdema and its relations to Graves' disease ..	32
Gravel, uric acid, Dr. V. Harley on the etiology, symptoms, and treatment of	282
Graves' disease, some cases of, succeeded by thyroid atrophy, Dr. W. W. Baldwin on	180
———— the relationship of myxœdema to, Mr. B. Campbell Gowan on	32
———— thyroidectomy in, Dr. J. Arthur Booth on	42
Greenfield, Prof., on strophanthus as a cardiac tonic	76
Groze, Dr., on the treatment of burns	111*
Guaiacol, as an antipyretic, external use of, Brill on	23
———— in fever, external application of, S. T. Barboszewicz on	22
———— in the treatment of miliary tuberculosis	46
Hæmaturia in infantile scurvy, Dr. Barlow on	24
———— persistent, Dr. C. F. Denny on local treatment by silver nitrate of persistent hæmaturia	107*
Hamilton, Prof., on a method of collection of diphtheritic discharges ..	19
Haring, Mr. N. C., on nodes of the vocal cords	259
Harley, Dr. Vaughan, on the etiology, symptoms, and treatment of uric acid gravel	282
Hart, Dr. D. Berry, on uterine curetting	381
Harvey, Dr. N. D., on a simple method of removal of foreign bodies in the cornea	120*
Heart failure in fevers, M. Huchard on the signs of	71
———— disease, Dr. H. A. Hare on sedatives in	75
———— Dr. W. Bezley Thorne on the treatment by baths and exercise of chronic affections of the	225
———— gouty, and its treatment, Dr. J. Mitchell Bruce on	230
———— nervous disturbance of the from influenza, Dr. Ernest Sansom on the treatment of	240
Heath, Mr. Christopher, on lateral curvature of the spine	115*
Hemorrhage in scurvy, Dr. Wallis Ord on subdural	38
———— post climacteric, Dr. Neumann on	124*
———— subdural, Dr. Wallis Ord on infantile scurvy	26
Hemorrhagic diphtheria, Dr. Harold Austen and Mr. Harry Coghill on ..	187
Hepatic infarction and portal thrombosis, Dr. N. Pitt on	72
Hewlett, Dr. Richard T., on tetanus antitoxin	114*
Hiccough, the treatment of obstinate, Mr. W. Langford Symes on ..	184
Higgins and Ogden, Drs., on traumatic glycosuria	45
Hip disease, tubercular, the results of	111*
Hopwood and Washburn, Drs., on cases illustrating the importance of an examination for the diphtheria bacillus	391
Horsley, Mr. Victor, on differential diagnosis of cerebral tumours	211
Hunt, Mr. Bertram, on antitoxic treatment of infective diseases	189
Hutchinson, Mr. Jonathan, on affections of the nervous system occurring in the early (secondary) stages of syphilis	50
———— on recurrence of chancres in the site of old sores	105*
Hypertrophy of the prostate, bilateral orchectomy for, Mr. J. D. Thomas on	107*
———— treated by castration, Dr. J. William White on	118
———— prostatic, treated by castration	108
Hypnotic action of trional note on the	44
Hysteria and exophthalmic goitre, thyroidism and its relation to	43
Hysterical contracture of the legs of two years' standing completely cured in a few weeks by ordinary methods of treatment, Dr. Hector Mackenzie on	58
———— deafness, Dr. Clarence J. Blake on	111*
Ichthyol in eczema, Mr. Tomroy on	117
Icterus neonatorum, Schmidt on	24
Idiopathic cerebro-spinal meningitis, acute, Dr. J. A. Ormerod on ten fatal cases of	49
Illoway, Dr. Henry, on habitual constipation	95
Impacted biliary calculi, including three cases in which a gall stone in the common duct was broken up by the needle, Mr. T. Pridgin Teale, on ..	385
Impetigo contagiosa bullosa	118
Incontinence of urine, Dr. Emminghaus on turpentine in	110
Infantile scurvy, Dr. Barlow, on the social relations, &c.	25
———— Dr. Wallis Ord on subdural hemorrhage	26
———— and its relation to rickets, Dr. Thomas Barlow on the clinical manifestations of	157

	PAGE
Infantile Scurvy, hæmaturia in, Dr. Barlow on	24
———— in surgical practice, Mr. Howard Marsh on	299
Infective diseases, antitoxic treatment of, Dr. Bertram Hunt on	189
Inflammation of the seminal vesicles, Dr. R. W. Taylor on	109*
Influenza and epidemic pneumonia, Dr. Cruickshank on relationship of	26
———— bilateral palsy as a sequence of, Mr. W. J. Barkas on	55
———— nervous disturbance of the heart from, Dr. E. Sansom on the treatment of	240
———— the prophylaxis of, Dr. J. G. Sinclair Coghill on	389
Ingravescent cerebral hemorrhage, treated by ligature of the common carotid artery, Dr. F. X. Dercum on	59
Injections through the larynx, treatment of respiratory affections by means of large medicinal, Mr. Colin Campbell on	90
Insomnia in surgery and its treatment, Dr. Geo. G. Van Schaick on	112
Insular sclerosis, transitory palsies in, Dr. Buzzard on	60
Intestine, carcinoma of the, Dr. James Ritchie on	93
Intubation and antitoxin in diphtheria, Dr. Hunter Mackenzie on	18
Jackson, Dr. James. M., on symphysiotomy	374
———— Dr. Hughlings, on absent knee jerks, with inaction of the intercostal muscles during respiration in pneumonia	87
Jaundice in a child two years of age, Dr. Donkin on malignant	99
Johnson, Dr. Geo. B., on nephrorrhaphy for movable kidney	355
Joints, non-tuberculous diseases of, Dr. A. J. Gillette on	306
Joint tuberculosis, acute, Dr. A. G. Millar on the diagnosis of	308
Kammerer, Dr., on pylorotomy and pyloroplasty	102*
———— Dr. F., on the surgical treatment of cancer of the pylorus	327
Kidney, movable, nephrorrhaphy for, Dr. Geo. B. Johnson on	355
Kidneys, cystic, Dr. Pye-Smith on	106
King, Dr. Herbert M., on the etiology of tuberculosis	136
Klein, Dr. E., on the relation of bacteria and their toxins	132
Knee-jerk, crossed, Dr. Hinsdale and Madison Taylor on	52
Knee-jerks, absent, with inaction of the intercostal muscles during respiration in pneumonia, Dr. Hughlings Jackson on	87
Krebs, Dr., on aristol in otorrhœa and burns	111
Labour, posture in, Dr. Sinclair on	125*
Lane, Mr. Arbuthnot, on sulphur in surgery	114
Laryngeal diphtheria, calomel fumigation in, Dr. W. P. Northrup on	150
———— paralysis in chronic nervous disease, Dr. W. Permewan on	210
Laryngitis, stridulous, in children, M. Huchard on	65
Larynx, malignant disease of the, Dr. Semon on	84
———— Dr. Felix Semon on	261
———— rheumatism of the, Dr. G. Hunter Mackenzie on	257
Lateral curvature of the spine, Mr. Christopher Heath on	115*
Latham, Dr., on antitoxin treatment of diphtheria	15
———— Dr. P. W., on the administration of salicylates in acute rheumatism	5
Lead convulsions, Dr. D. D. Stewart on	214
Lehmann, Dr. F., on tuberculosis at delivery—foetus infected	128*
Leprosy on the ulnar nerve, Mr. Banks on	61
Leucocythemia treated with arsenic and oxygen, Dr. Frederick Taylor on	40
Leukæmia, Dr. S. Rummo on hypodermic administration of arsenic in	28
Littlewood, Mr. H., on the treatment of aneurisms of arteries of the extremities by extirpation of the sac	293
Locomotor ataxia, early signs of Prof. Fournier on	61
———— ataxy, Dr. Parker Symes on arthropathies of	204
Lubricants gymnæcological practice, Dr. E. C. Duplex on	124*
Lucas, Mr. Clement, on the control of hemorrhage by the operator in amputation of the shoulder	110*
Macalester, Dr. R. K., on the nervous symptoms of patients suffering from chronic urethritis	288
Macdonald, Dr. Greville, on suppuration in accessory cavities of the nose	370
Mackenzie, Dr. G. Hunter, on rheumatism of the larynx	257
———— on intubation and antitoxin in diphtheria	18
———— Dr. Hector, on hysterical contracture of the legs	58
Malakin as anti-pyretic and anti-rheumatic, Dr. Robert Abernethy on	20
Mammary cancer patients, Mr. W. Roger Williams on the life-history of	388
Mann, Dr. Dixon, on elimination of arsenic	7
Marsh, Mr. Howard, on fracture of the femur above the condyles	313
———— on infantile scurvy in surgical practice	299
Marshall, Dr. C. F., on a fatal case of anorexia nervosa	55

<i>McBride</i> , Dr., on coryza caseosa	120*
<i>McCartie</i> , Dr. D. B., on ataxia as a symptom of disease in the cerebro-spinal system	200
<i>McCosh</i> , Dr. A. J., on gonorrhœal peritonitis in the male	107
Ménière's disease, pilocarpine in	123*
Meningitis, acute idiopathic cerebro-spinal, Dr. J. A. Ormerod on	49
Menthol in diphtheria, F. Kastorsky on	30
—— in otitis externa	111*
Migraine, Dr. Clause on	62
Miliary tuberculosis treated with guaiacol	46
<i>Millar</i> , Dr. A. G., on the diagnosis of acute joint tuberculosis	308
Morphia, new antidotes to, Dr. Chambers on potassium permanganate	33
<i>Morrison</i> , Dr. Alexander, on feeding by the stomach-tube in diphtheria	22
Movable kidney, nephrorrhaphy for, Dr. Geo. B. Johnson on	355
Murphy's button used in two cases of enterectomy, Dr. W. Banks on	342
<i>Murray</i> , Dr., on osteo-arthritis	34
—— Mr. Geo. R., on two cases of acromegaly, with remarks	177
Myositis ossificans, Mr. Stephen Paget on a case of	30
Myxœdema, its relation to Graves' disease, Mr. B. Campbell Gowan on	32
Naphthol, as an application to the skin, Baatz on the dangers of	118*
Nephrorrhaphy for movable kidney, Dr. Geo. B. Johnson on	355
Neurasthenia, Dr. F. Orton on depression of spirits bordering on insanity	63
Neuritis, optic, in brain tumour, Dr. Wm. H. Wilder on	63
—— traumatic peripheral, M. Delorme on treatment of	67
Neuroses of the throat at the climacteric period Dr. Felix Semon on	207
<i>Newsholme</i> , Dr. Arthur, on the natural history of rheumatic fever	192
Night sweats, treatment by chloralose, M. Sacaze on	86
Nodes of the vocal cords—singers' and teachers' nodes, Mr. N. C. Haring on	259
Non-tuberculous diseases of joints, Dr. Arthur J. Gillette on	306
<i>Northrup</i> , Dr. W. P., on calomel fumigation in laryngeal diphtheria	150
Nose, suppuration in the accessory cavities of the, Dr. G. MacDonald on	370
<i>Ogden and Higgins</i> , Drs., on traumatic glycosuria	45
<i>Ogston</i> , Dr. A., on treatment of non-malignant stricture of the pylorus	275
Ophthalmia neonatorum, Dr. Kalt on the treatment of	146
—— Mr. John Tweedy on the treatment of	367
Optic neuritis in brain tumour, Dr. William H. Wilder on	63
<i>Ormerod</i> , Dr. J. A., on fatal cases of idiopathic cerebro-spinal meningitis	49
<i>Orton</i> , Dr. F., on neurasthenia, or depression bordering on insanity	63
<i>Osler</i> , Dr., on chills as a cause of error in diagnosis	9
Osteo-arthritis, Dr. Murray on	34
Otitis externa, menthol in	123
—— media, the prognosis of chronic non-suppurative, with imperforate membrane, Mr. Field on	123
Otorrhœa and burns, aristol in, Dr. Krebs on	111
<i>Owen</i> , Mr. D., on thymus gland in the treatment of exophthalmic goitre	20
<i>Paget</i> , Mr. Stephen, on a case of myositis ossificans	30
Palsies in insular sclerosis, Dr. Buzzard on transitory	60
Pancreatitis, acute, Dr. J. E. Paul on	92
Paralysis, laryngeal, in chronic nervous disease, Dr. W. Permewan on	210
<i>Parker Symes</i> , Dr., on arthropathies of locomotor ataxy	204
<i>Paul</i> , Dr. J. E., on acute pancreatitis	92
—— Mr. F. T., on excision of the rectum	351
<i>Pearce</i> , Gould, Mr. A., on operative treatment of perforative ulcer, &c.	324
<i>Pepper</i> , Dr. W., on calomel as a diuretic	8
Perforation of soft palate in scarlet fever, Dr. E. W. Goodall on	37
Perforative ulcer of the stomach and intestines, Mr. A. Pearce Gould on	324
Pericarditis, M. Jossierand on an early sign of	72
Peripheral neuritis, traumatic, M. Delorme on treatment of	67
Peritoneal adhesions	100
"Peritoneum to peritoneum" a surgical error? Is the apposition of, Mr. J. Greig Smith on	320
Peritonitis, general, treated medically, Prof. Revilliod on observation on	101
—— gonorrhœal in the male, Dr. A. J. McCosh on	107
—— tuberculous, with ascites, Dr. Frees on operative treatment of	104*
Perityphlitis, Mr. Symonds on operative treatment of	101*
<i>Permewan</i> , Dr. W., on laryngeal paralysis in chronic disease	210
Pharynx, acute miliary tuberculosis of the	103*
<i>Phocas</i> , Dr., on torticollis of rhachitic origin	116
Phthisis, pulmonary, Dr. Carasso on the new method of treatment of	89

	PAGE
Phthisis, remarks on the climatic treatment of, Dr. C. T. Williams on ..	251
Pilocarpine in Ménière's disease	123*
<i>Pitt</i> , Dr. N., on portal thrombosis and hepatic infarction	72
Plethora, senile, on high arterial pressure, &c., Prof. Clifford Allbutt on ..	76
Pleuritic effusions, treatment of M. Sacaze on	86
Pneumonia, G. Ivanoff on the treatment of	89
———— absent knee-jerks, with inaction of the intercostal muscles during respiration in, Dr. Hughlings Jackson on	87
———— epidemic, and influenza, Dr. Cruickshank on relationship of ..	26
Poliomyelitis, acute anterior, Dr. Starr on	48
———— Von Kahliden on	47
Polymyositis, Mr. R. T. Williamson on	35
Portal thrombosis and hepatic infarction, Dr. N. Pitt on	72
Post climacteric hemorrhage, Dr. Neumann on	124*
Posture in labour, Dr. Sinclair on	125*
<i>Potain</i> , Professor, on enteralgia	269
Potassium permanganate, Dr. G. Chambers on new antidote to morphia ..	33
Pregnancy and operations on the uterine appendages	126
———— following ventral fixation of the uterus, Dr. Helena Goodwin on ..	126
Presystolic apex murmur occurring with aortic disease and with adherent pericardium, with absence of mitral stenosis, Dr. T. Fisher on ..	73
Prolapse of the rectum treated by ventro-fixation, Mr. Arnold Caddy on ..	350
Prophylaxis of influenza, Dr. J. G. Sinclair Coghill on the	389
Prostate, hypertrophied, Dr. J. W. White on castration for the cure of ..	357
———— hypertrophy of the, Mr. J. D. Thomas on orchectomy for ..	107*
Prostatic hypertrophy, treated by castration	108
Pruritus treated by antipyrin, F. Arnstein on	64
Psoriasis palmaris, Dr. H. S. Purd on	118*
Pubic symphysiotomy, Dr. Garrigues on	126*
Puerperal convulsions and albuminuria	108*
———— fever, Dr. Chas. J. Cullingworth on the local treatment of ..	377
Pulmonary phthisis, Dr. Carasso on the new method of treatment of ..	89
<i>Pye-Smith</i> , Dr., on cystic kidneys	106
Pylorotomy and pyloroplasty, Dr. Kammerer on	102*
Pylorus, cancer of the, Dr. F. Kammerer on the surgical treatment of ..	327
———— non-malignant stricture of the, Dr. A. Ogston on the treatment of ..	275
Pyrexia, Dr. W. Hale White on the treatment of	129
Pyloroplasty and pylorotomy, Dr. Kammerer on	102*
Rectal etherisation, Mr. Bernard Stedman on	112
Rectum, a new method of resection, Dr. Routier on	102*
———— excision of the, Mr. F. T. Paul on	351
———— prolapse of the, Mr. Arnold Caddy on treatment by ventro-fixation ..	359
Relapsing typhlitis, observations by Mr. F. Treves, on a series of cases of ..	347
Resection of the rectum, a new method of, Dr. Kammerer on	102*
Respiratory affections treated by large medicinal injections through the larynx, Mr. Colin Campbell on	90
Retinitis albuminurica, on the duration of life after the appearance of ..	109
<i>Revilloid</i> , Prof., on general peritonitis treated medically	101
Rheumatic fever, the natural history of, Dr. Arthur Newsholme on ..	192
Rheumatism, acute, administration of salicylates in, Dr. P. W. Latham on ..	5
———— acute articular, M. Henri Huchard on sodium salicylate in ..	38
———— of the larynx, Dr. G. Hunter Mackenzie on	256
Rhinitis, atrophic, the treatment of by zinc stearate, Dr. Joseph S. Gibb on ..	265
Rickets, infantile scurvy and its relation to, Dr. Thomas Barlow on ..	157
———— scurvy, Dr. Ashby on	38
———— the pathology of infantile scurvy, Dr. Thomas Barlow on	152
<i>Ritchie</i> , Dr. James, on carcinoma of the intestine	93
<i>Rolleston</i> , Dr. H. D., on the supra-renal bodies	170
<i>Rose</i> , Dr., on the treatment of septicæmia following confinement	127*
<i>Roulier</i> , Dr., on a new method of resection of the rectum	102*
<i>Rummo</i> , Dr. S., on hypodermic administration of arsenic in leukæmia ..	28
Salicylates in acute rheumatism, Dr. P. W. Latham on	5
<i>Sansom</i> , Dr. Ernest, on nervous disturbance of the heart by influenza ..	240
Scarlet fever, perforation of soft palate in, Dr. E. W. Goodall on	37
<i>Schaick</i> , Dr. Geo. G. Van, on insomnia in surgery and its treatment ..	112
Schwarz on the treatment of dysmenorrhœa	124*
Sclerosis, insular, Dr. Buzzard on transitory palsies in	60
Scurvy and its relation to rickets, Dr. Thomas Barlow on the clinical manifestations of infantile	157
———— infantile, Dr. Barlow on hæmaturia in	24

	PAGE
Scurvy, Infantile, Dr. Barlow, on the social relations, &c.	25
— Dr. Wallis Ord on subdural hemorrhage	26
— in surgical practice, Mr. Howard Marsh on	299
— in its relation to rickets, the pathology of, Dr. T. Barlow on	152
— subdural hemorrhage in, Dr. Wallis Ord on	38
— rickets, Dr. Ashby on	38
— (Barlow's disease), Baginsky on	7
Seborrhœic eczema in children, treatment of	119
Sedatives in heat disease, Dr. H. A. Hare on	75
Seminal vesicles, Dr. R. W. Taylor on inflammation of the	109*
Semon, Dr. on malignant disease of the larynx	84
— Dr. Feix, on foreign bodies in the air and food passages, &c.	254
— on malignant disease of the larynx	261
— on the sensory throat neuroses of the climacteric period	207
Senile plethora, or high arterial pressure in elderly persons, Prof. Clifford Allbutt on	76
Septicæmia following confinement or miscarriage, Dr. Rose on	127
Sevestre, Dr., on cardiac asthenia in children suffering from infectious diseases	238
Shoulder, amputation at the, Mr. Clement Lucas on the control of hemorrhage by the operator in	110*
Sinclair, Dr., on posture in labour	125*
Skerritt, Dr. Markham, on caffeine in spasmodic asthma, &c.	80
Skull, tumours involving the base of the, Mr. Cecil Beadles on	68
Sleeplessness in children, trional in	43
Smith, Dr. S. M., on furunculosis of the external auditory canal	121*
— Mr. J. Greig, on—Is the apposition of peritoneum to peritoneum a surgical error?	320
Snow, Dr. Herbert, on the conditions of cure in cancer	302
Sodium salicylate in acute articular rheumatism, Mr. Henri Huchard on	38
Southam, Mr., on catheter fever	105*
— on the treatment of gleet	106*
— F. A., on impacted fracture of the neck of the femur	311
Spicer, Dr. Scanes, on the chronic form of empyema of the antrum	121
Spinal cord, injuries of the, Mr. Wm. Thorburn on the treatment of	315
Spine, Mr. Christopher Heath on lateral curvature of the	115*
Splenic leucocythemia treated with arsenic and oxygen, Dr. Taylor on	40
Sprained ankle, Dr. Gibney on treatment of	113
Starr, Dr., on acute anterior poliomyelitis	48
Stedman, Mr. Bernard, on rectal etherisation	112
Stephens, Mr. Lockhart, on a fatal case of anorexia nervosa	53
Sterilisation of milk, and summer diarrhœa, A. Baginsky on	103
Stewart, Dr. D. D., on lead convulsions	214
Stomach and intestines, perforative ulcer of the, Mr. A. Pearce Gould on operative treatment of	324
— cancer of the, Dr. R. B. Faulkner on the absence of free hydrochloric acid in	279
— tetany and chronic dilatation of the, Dr. Soltau Fenwick on	66
Stomach-tube in diphtheria, Dr. Alexander Morrison on feeding by the	22
Stricture of the pylorus, non-malignant, Dr. A. Ogston on the treatment of	275
Stridulous laryngitis in children, M. Huchard on	65
Strophanthus as a cardiac tonic, Prof. Greenfield on	76
Subdural hemorrhage in scurvy, Dr. Wallis Ord on	38
Sulphonal and trional	42
Sulphur in surgery, Mr. W. Arbutnot Lane on	114
Supra-renal bodies, Dr. H. D. Rolleston on	170
Sweats, nights, their treatment by chloralose, M. Sacaze	86
Symes, Mr. W. Langford, on the treatment of obstinate hiccough	184
Symonds, Mr., on operative treatment of perityphlitis	101*
Symphysiotomy, Dr. James M. Jackson on	374
— Dr. Winterberg on	128
— Pinard on	127*
— permanent results of	128
— pubic, Dr. Garrigues on	126*
Syphilis, affections of the nervous system, Mr. J. Hutchinson on	50
— spinal, Scafati on	64
Taylor, Dr. Frederick, on splenic leucocythemia	40
— Dr. R. W., on inflammation of the seminal vesicles	109*
Teale, T. Pridgin, on the disruption of impacted biliary calculi, &c.	385
Tetanus antitoxin, Dr. Richard T. Hewlett on	114*

	PAGE
Tetanus, chloroform in	116
——— recovery of a case treated by antitoxin	114*
Tetany and chronic dilatation of the stomach, Dr. S. Fenwick on	66
Thomas, Mr. J. D., on bilateral orchectomy, for hypertrophy of the prostate	107*
Thornburn, Mr. Wm., on the treatment of injuries of the spinal cord	315
Thorne, Dr. W. Bezley, on the treatment of chronic affections of the heart	225
Throat neuroses of the climacteric period, Dr. F. Semon on	207
Thrombosis, portal, and hepatic infarction, Dr. N. Pitt on	72
Thyroidectomy in Graves' disease, Dr. J. Arthur Booth on	42
Thyroid extract, Graves' disease, succeeded by Dr. W. W. Baldwin on	180
——— treatment of skin diseases by, Dr. P. S. Abrahams on	119
——— feeding in Basedow's disease	42
——— gland, improvement of acromegaly by, Dr. Caton on	1
Thyroidism, and its relation to exophthalmic goitre and to hysteria	43
Tonsillitis, acute	103*
Torticollis of rhachitic origin, Dr. Phocas on	116
Toxines, the relation of bacteria and their, Dr. E. Klein on	132
Traumatic glycosuria, Drs. Higgins and Ogden on	45
——— peripheral neuritis, treatment of M. Delorme on	67
Treves, Mr. Frederick, on a series of cases of relapsing typhlitis	347
Trienal and sulphonal	42
——— in sleeplessness in children	43
Tubercle infected houses, the disinfection of	46
Tubercular hip disease, the results of	111*
Tuberculosis at delivery, Dr. F. Lehmann on fœtus infected	128*
——— diagnosis of acute joint, Dr. A. G. Millar on	308
——— of the genito-urinary organs, Dr. Francis S. Watson on	362
——— of the pharynx, acute milary	103*
——— the etiology of, Dr. Herbert M. King on	136
——— urogenital, Porter on	110*
Tuberculous peritonitis with ascites, Dr. G. Frees on operative treatment of	104*
Tumour-brain, Dr. Wm. H. Wilder on optic neuritis in	63
Tumours, differential diagnosis of cerebral, Mr. Victor Horsley on	211
——— involving the base of the skull, Mr. Cecil Beadles on	68
Turpentine in incontinence of urine, Dr. Emminghaus on	110
Tweedy, Mr. John, on the treatment of ophthalmia neonatorum	367
Typhlitis, relapsing, observations by Mr. F. Treves, on	347
Typhoid fever, Dr. Charles W. Dulles on diet in	162
Ulcer of the stomach and intestines, Mr. A. Pearce Gould on	324
Ulcers of the leg, treatment of chronic	116*
Ulnar nerve, leprosy of the, Mr. Banks on	61
Urethritis, chronic, the nervous symptoms of, Dr. R. K. Macalester on	288
Uric acid gravel, Dr. V. Harley on the etiology, &c., of	282
Urine, incontinence of, Dr. Emminghaus on turpentine in	110
——— in diphtheria, suppression of, Dr. E. W. Goodall on	286
Urogenital tuberculosis, Porter on	110*
Urticaria pigmentosa	119*
Uterine appendages, pregnancy and operations on the	126
——— curettings, Dr. D. Berry Hart on	381
——— myoma, Mr. Cullingworth on	127
Uterus, ventral fixation of the	128*
Ventro-fixation for relapse of the rectum, Mr. Arnold Caddy on	353
Vesical calculus, Mr. Gilbert Barling on	359
Vocal cords, Mr. N. C. Haring on singers and teachers' nodes of the	259
Wallis Ord, Dr., on subdural hemorrhage from infantile scurvy	26
——— in scurvy	38
Watson, Dr. F. S., on primary tuberculosis of the genito-urinary organs	362
White, Dr. Hale, on colitis	271
——— Dr. J. W., on hypertrophy of the prostate treated by castration	108
——— Mr. J. E., on appendicitis	92
——— Dr. J. Wm., on appendicitis	334
——— on castration for the cure of hypertrophied prostate	357
Wilder, Dr. W. H., on optic neuritis in brain tumour	63
Williams, Dr. C. T., on the climatic treatment of phthisis	251
——— Mr. W. Roger, on the life-history of mammary cancer patients	389
——— on the influence of diet in the causation of cancer	379
Williamson, Mr. R. T., on polymyositis	35
Willy Meyer, Dr., on the various methods of performing gastrostomy	330
Woodhead, Dr. G. Sims, on the antitoxin treatment of diphtheria	144
Zinc stearate, Dr. J. S. Gibb on the treatment of atrophic rhinitis by	265

Attention is specially called to

INGLUVIN.

COMPRESSED INTO 5 GRAIN-LENTIFORMS,
OR IN POWDER.

A Powder prescribed in the same manner, doses, and combinations as Pepsin.

INGLUVIN has answered admirably in several cases of obstinate vomiting in pregnancy which have occurred in my practice, when all other drugs have failed.

(Signed) RICHARD PARAMORE, M.R.C.S., Eng.

HUNTER STREET, W.C., May 1, 1880.

I had a case of persistent vomiting two years ago (in the case of a young lady) which resisted all the usual remedies. At length I tried INGLUVIN, which proved eminently successful, not merely temporarily, but permanently.

LLANDUDNO, N. WALES, May 12, 1881.

JAMES NICOL, M.D.

I have used the INGLUVIN prepared by W. R. Warner & Co., both at the hospital and in private practice, for the various forms of Dyspepsia, and it has proved highly satisfactory on every occasion.

(Signed) REGINALD LOUIS VERLEY, F.R.C.P., Physician to the Hospital for Diseases of the Heart and Paralysis, 30, Soho Square, W.

GOWER HOUSE, GOWER STREET, W.C., June 1, 1880.

Prepared only by WM. R. WARNER & CO., Manufacturing Chemists.

Per oz. 4s. Sample free on request.

SOLE DEPÔT FOR THE UNITED KINGDOM—

F. NEWBERY & SONS, 1 & 3, King Edward Street, LONDON, E.C.

(ESTABLISHED A.D. 1746.)

WM. R. WARNER & CO., **PHARMACEUTICAL CHEMISTS.**

SIXTEEN INTERNATIONAL PRIZE MEDALS AWARDED.

BROMO-SODA (Registered).

Bromide of Sodium with Caffeine, in the Granular form. Very carefully and evenly made. Invaluable in Sleeplessness, Brain Fatigue arising from overwork, &c. "THE LANCET" states that "the sodium compound does, in fact, agree better (than the potassium salt) with some stomachs."

Per large Bottle, 3/-.

PARVULES (Registered).

A new class of medicines (minute pills) designed for the administration of small exact doses for frequent repetition in cases of children and adults.

Per 100, 1/-.

SUGAR-COATED PILLS.

Unequalled in their medicinal properties or in **Solubility**. Each pill will produce the effects expected, and an experience of nearly thirty years, coupled with unremitting care and study, have enabled the manufacturers to achieve results otherwise unattainable.

INGLUVIN (Registered).

The essential principle of the gizzard, and bearing the same relation to poultry that pepsin does to the higher animals. Where pepsin refuses to act, and in severe cases has even been rejected by the stomach, Ingluvine has effected relief rapidly and with ease.

Per oz. Bottle, Powder or Compressed 4/-.

Samples, detailed Price List, &c., mailed on application to the Sole British Depôt,

F. NEWBERY & SONS (Established A.D. 1746),

1 & 3, KING EDWARD STREET, LONDON, E.C.

UNIVERSITY OF EDINBURGH.

FACULTY OF MEDICINE.—WINTER SESSION.

The Winter Session commences in October.

Materia Medica .. Prof. T. R. Fraser, M.D.
Chemistry Prof. Crum Brown.
Surgery Prof. Chiene, M.D.
Institutes of Medicine or Physiology—

Prof. Rutherford, M.D.
Midwifery and Diseases of Women and
Children Prof. Simpson, M.D.
Clinical Surgery (Mon. and Th.)—

Practice of Physic— [Prof. Annandale.
Prof. Sir Thomas G. Stewart, M.D.

LECTURERS.—Clinical Instruction on Diseases of Children, James Carmichael, M.D.,
and John Playfair, M.D.

Clinical Medicine (Tu. and Fr.)—

Profs. Sir Thomas Grainger Stewart,
Fraser, and Greenfield; and Prof.
Simpson on Diseases of Women.

Anatomy .. Prof. Sir William Turner, M.B.
General Pathology .. Prof. Greenfield, M.D.

Botany Prof. Balfour, M.D.

Natural History Prof. Ewart, M.D.

Medical Jurisprudence—
Prof. Sir Douglas Maclagan, M.D.

SUMMER SESSION.

From the beginning of May.

Botany, Prof. Balfour. Medical Jurisprudence, Prof. Sir Douglas Maclagan. Clinical
Medicine, by Profs. Sir Thomas Grainger Stewart, Fraser, and Greenfield; and Prof.
Simpson on Diseases of Women. Clinical Surgery, Prof. Annandale. Chemistry (Advanced
Class), Prof. Crum Brown. Natural History, Prof. Ewart. Physics, Prof. Tait.

LECTURERS.—Mental Diseases, T. S. Clouston, M.D.; Diseases of the Eye, D. Argyll
Robertson, M.D.; Clinical Instruction on Diseases of Children, James Carmichael, M.D.,
and John Playfair, M.D.; Comparative Embryology, J. Beard, D.Sc., Ph.D.

The annual value of the Fellowships, Scholarships, Bursaries, and Prizes in the
Faculty of Medicine amounts to £3,750; that of other Fellowships, Bursaries, and Prizes,
tenable by Students of Medicine, amounts to £1,250. Total annual value, about £5,000.

Practical Instruction is given in Laboratories, with all the necessary appliances,
and in Tutorial and Practical Classes connected with the above Chairs, and superintended
by the Professors.

A copy of the Regulations for Graduation in Medicine and Surgery may be had on
application to the Dean of the Faculty of Medicine, or to the Clerk of Senatus.

UNIVERSITY OF EDINBURGH, *Feb.*, 1895.

JOHN KIRKPATRICK,
Secretary of Senatus.

THE ASCLEPIAD,

A BOOK OF ORIGINAL RESEARCH AND
OBSERVATION IN THE

SCIENCE, ART, and LITERATURE of MEDICINE,
PREVENTIVE and CURATIVE,

BY

SIR BENJAMIN WARD RICHARDSON, M.D., F.R.S.

LONDON: LONGMANS, GREEN & CO., 39, Paternoster Row, E.C.

Liquor

"A valuable addition to our
list of Skin Remedies" LANCE

Carbonis

"We can affirm its value as a Detergent
agent and as an article
of great utility"

BRITISH MEDICAL JOURNAL

One of the best
Tarry Lotions"

PRACTITIONER

Detergens

"We have more than once
called attention to the value
of this remedy in Chronic Eczema"

MEDICAL TIMES & GAZETTE

Wright

"Most effective
in Skin Diseases"

LANCE

Coal

"The only true
antiseptic Soap"

BRITISH MEDICAL JOURNAL

Tar

Soap

THE ORIGINAL
AND ONLY GENUINE

COAL TAR SOAP

THIRTY YEARS REPUTATION

PROPRIETORS AND MANUFACTURERS.

Wright Layman & Urnney. (late W. V. Wright & Co) Southwark, London

Byno-Hypophosphites.

"A valuable Alimentary Tonic."

(Medical Press and Circular.)

A Nutritive and Digestive Tonic.

Byno-Hypophosphites is a nutritive and digestive tonic, and has been proved to be specially valuable in convalescence from severe illnesses, and in cases of debility with loss of appetite and general want of tone, Byno-Hypophosphites will be found to be of great service, improving the appetite, assisting digestion, and generally bracing up the system.

Composition.

Its constituents are—(1) A neutral solution of the Hypophosphites of Lime, Iron, Potash, and Manganese, whose tonic action is well known.

Alkaloids in an assimilable condition

(2) The alkaloids of Nux Vomica and Bark, viz., Strychnine and Quinine, the amount of Strychnine present being accurately ascertained—e.g., gr. 1-40 in an ounce.

These alkaloids are present in combination with the natural acids as found in the plants from which they are derived, this condition rendering their absorption easier and their action more certain.

Superiority over (Sugar) Syrups of Hypophosphites.

(3) Bynin—Liquid Malt—our well-known preparation, which by its pleasant flavour covers the bitter taste of the Hypophosphites and Alkaloids. Further, *it does away with the necessity of using sugar, which, as found in the ordinary syrups of the Hypophosphites, is liable to cause dyspepsia and upset the stomach.* Beyond these advantages it yields, of course, all the benefits which are ordinarily to be gained by taking Extract of Malt in aiding nutrition and digestion.

Byno-Hypophosphites is a clear amber-coloured liquid of agreeable, faintly bitter taste, readily miscible with water, depositing no sediment, and leaving no after-taste in the mouth.

Therapeutics.

Whether or no Hypophosphites enable Phosphorus to be administered in a more readily assimilable form than do other combinations of this drug, it is as certain as extended clinical experience can make it that a combination of metallic Hypophosphites is of great value, having a powerful stimulating effect, acting on the nervous system especially. The advantages to be derived from the general tonic action of the alkaloids of Cinchona and Nux Vomica, and the digestive and nutritive properties of Bynin (Liquid Malt) are obvious.

OPINIONS OF MEDICAL PRESS.

The **Lancet** writes, January 7th, 1893:—"This is an excellent preparation, in which are ingeniously combined the hypophosphites of iron, lime, potash and manganese with the alkaloids of cinchona and nux vomica in combination with the well-known active malt essence, Bynin, of the same firm. We have proved its efficacy as regards digestive power, while the tonic salts already indicated and the alkaloids of nux vomica were readily detected. Putting on one side its undoubted therapeutic value, attributable to the hypophosphites, the liquid malt itself not only affords an excellent vehicle in the place of the ordinary syrup, but it obviously increases this value by reason of its digestive action."

The **Hospital Gazette** writes:—"The value of such a preparation must be obvious, as in addition to the tonic action of the hypophosphites and alkaloids, digestion of food is promoted by the diastase contained in the malt extract, which in itself is a highly nutrient agent."

Sold in Bottles (Retail) at 2/6 and 4/6; 24/- and 41/- per doz. to the Profession.

Allen & Hanburys, Ltd., London.

Offices, Laboratories & Warehouse—BETHNAL GREEN, E. City House—PLOUGH COURT, LOMBARD ST., E.C.

West End House—VERE ST., W. Cod Liver Oil Factories—LONGVA AND KJERSTAD, NORWAY.

Dépôt for AUSTRALIA—484, COLLINS ST., MELBOURNE.

See also pages i, ii, iii, and 401.

